

W.G. Jones
PRELIMINARY

**MIDLAND PLANT
UNITS 1 & 2
CONSUMERS POWER COMPANY
JOB 7220**

PROJECT STATUS

FEBRUARY 1978



8402020052 831104
PDR FOIA
ZACK83-579 PDR

STATUS REPORT

FEBRUARY 1978

OVERALL STATUS

- Composite project completion at the end of February was 44 percent.
- Engineering is estimated to be approximately 70 percent complete. Engineering continued on the design of the main power block, principal yard structures and underground facilities, and procurement of equipment and material. Overtime was continued in some critical areas.
- Construction is estimated to be 39 percent complete. Construction activities continue as projected in the project Forecast #4. Total plant large process pipe installation is 42 percent complete. Total plant erection of cable tray is 29 percent complete. The makeup pump structure and river intake structure with associated mechanical equipment required for pond fill were turned over to Consumers Power Company.
- The NRC conducted an unannounced audit at the Midland site on February 8-10, 1978. The audit was primarily directed to receipt, storage, maintenance, installation of Class 1E electrical equipment, and review of applicable procedures. No items of noncompliance resulted from this audit.
- The ER was completed and submitted to the NRC on March 1, 1978.

AREAS OF CONCERN

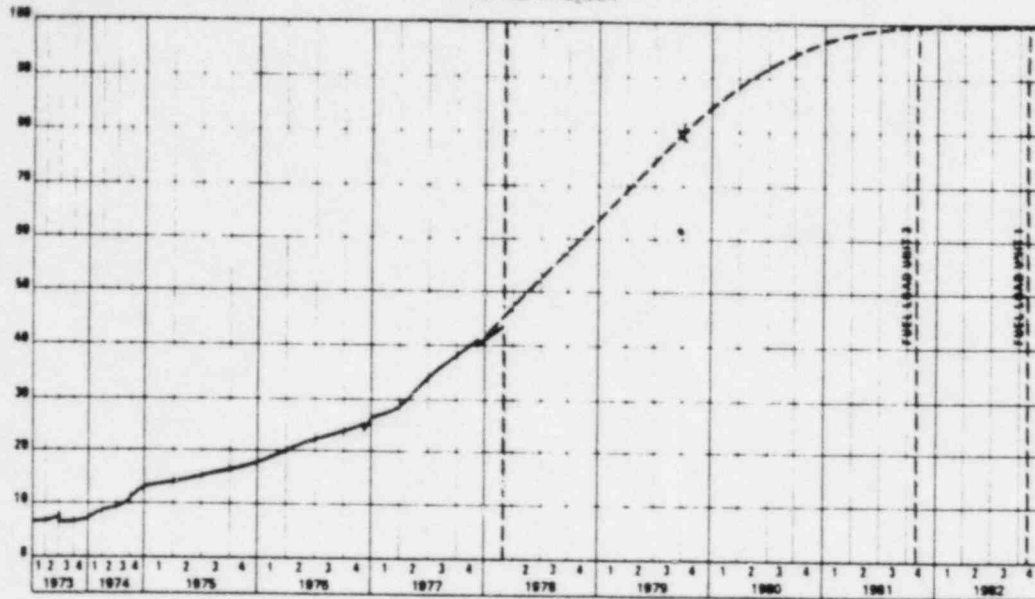
- Resolution of licensing questions on fuel cycle, energy conservation, and cost benefit analysis
- Delivery of pipe, hangers, valves, and equipment in time to maintain effective piping operations
- Obtaining manpower requirements for critical crafts
- Early NRC response to proposed plant security plan
- Resolution of startup schedule interfacing and duration



7220 MIDLAND UNITS 1 & 2 FORECAST NO. 4 STATUS OF PROJECT

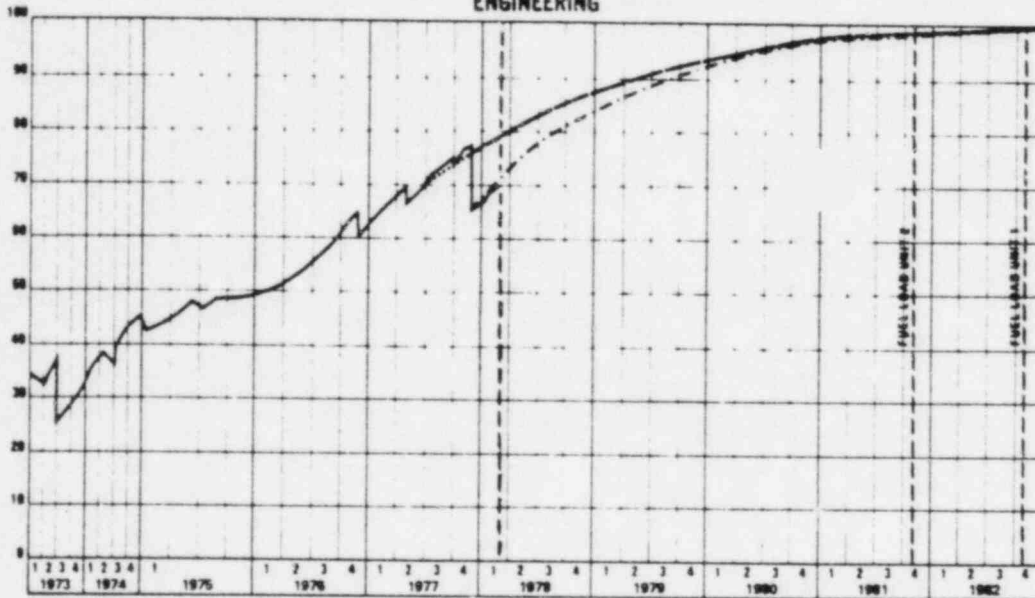
TOTAL PROJECT

FEBRUARY 1978

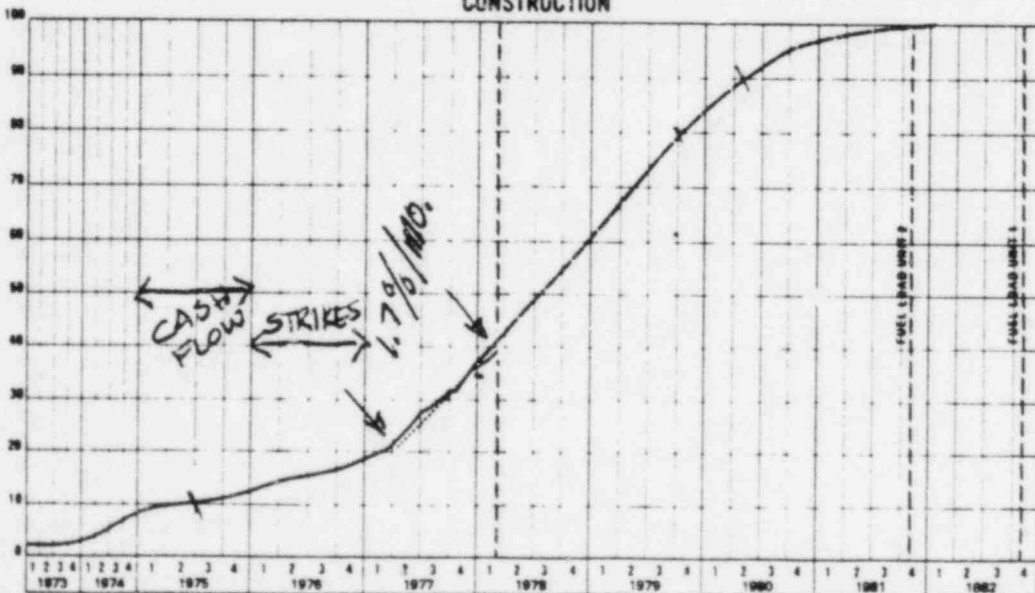


ENGINEERING

PERCENT OF FORECASTED MANHOURS



CONSTRUCTION



37
2/6

1.77
9/16
72

137

EXPENDITURES CURVE

(LATER)

ENGINEERING STATUS REPORT

FEBRUARY 1978

GENERAL

- Engineering is estimated to be approximately 70 percent complete with 334 engineering personnel on the project.

Bechtel engineers met with CPCo regarding BOP calculations, the automatic turbine startup system, and general service butterfly and ball control valve design philosophy; with CPCo and Reliance Electric regarding the central processing unit; with CPCo and NUS regarding process steam radiation monitoring; with Bechtel (San Francisco) regarding the process steam transfer simulation; with W. J. Wooley regarding cracked welds in the reactor building locks and hatches; with Waters Equipment regarding the evaporator sampling system; with Foxboro regarding the evaporator analog loop diagrams; with ITT Hammel Dahl regarding pressure regulator drawings; with Magnetics regarding the main control boards and auxiliary local control panels; with Electro Devices regarding annunciator wiring; and with Pathway Bellows regarding tolerances in the fuel transfer tubes.

AREAS OF CONCERN



- Resolve reactor building spray system licensing problems
- Delivery of reactor building emergency sump isolation valves *Dr*

ARCHITECTURAL

- The architectural group issued for client review the specifications for aluminum entrances, curtain wall systems and windows, glass and glazing, ceramic tile, resilient floors, metal lockers, facing brick masonry, acoustical and luminous ceilings, painting and decorating, movable partitions, laundry equipment, interior sun control, kitchen equipment, and elastomeric roofing. Issued for construction were one administration building door schedule and one Unit 1 turbine building interior elevations drawing.

CIVIL

- The civil group issued for client review the specifications for field erected tanks and plant and access road paving. Issued for construction were two solid radwaste building concrete outline foundation plan drawings, seven solid radwaste building foundation reinforcing drawings, one turbine building Units 1 and 2 isophase bus support sections and details drawing, one reactor building Units 1 and 2 missile shielding drawing, one turbine building Units 1 and 2 missile shielding drawing, two reactor building Units 1 and 2 sump plans and sections drawings, two reactor building Units 1 and 2 miscellaneous steel pipe restraint structures drawing, one auxiliary building structural steel modifications and pipe restraint drawing, and one service water pump structure miscellaneous steel platforms sections and details drawing. Released for fabrication was one evaporator building miscellaneous platforms drawing.

CONTROL SYSTEMS

- The control systems group issued the bid recommendation on the material requisition for general service butterfly and ball control valves and issued for bids the specification for vibration monitoring instruments. Issued for construction were 43 loop diagrams and one instrument installation summary.

ELECTRICAL

- The electrical group issued for field use the specification for prefabricated connector assemblies and issued the specification for the evacuation alarm system for client review. Issued for construction were five auxiliary building cable tray seismic support drawings, two reactor building cable tray seismic support support drawings, one auxiliary building conduit and tray plan drawing, one intake structure and chlorination building conduit and tray plans drawing, and 35 schematic pages.

MECHANICAL

- The mechanical group issued for client review the specification for miscellaneous cranes and hoists and bid recommendations on the material requisitions for nonnuclear HVAC instrumentation and the auxiliary

MECHANICAL (continued)

boiler feed pumps. Issued for purchase was the material requisition for ANSI B31.1 carbon steel 150#-400# valves. Issued for use were the system description and the flow diagram for the reactor coolant and pressure control system.

PLANT DESIGN

- The plant design group issued for construction three turbine building Unit 1 HVAC plan drawings, one evaporator building HVAC sections drawing, one evaporator building floor plan drawing, one auxiliary building area piping drawing, and two turbine building Unit 1 area piping drawings. Issued for hanger fabrication were five isometrics for the Units 1 and 2 auxiliary steam boiler system, the auxiliary building liquid waste system, the administration building heating system, the turbine extraction heater vents and drains system, and the Unit 1 feedwater and condensate system. Issued for use were two process drainage drawings for the evaporator building and Unit 1 turbine building.

PROJECT CURVES

- The attached manpower curves reflect status based on Forecast #4. The specification and purchase order curves and the drawing curves reflect progress to date based on the material requisition log and the drawing log of the CEBUS program.

LICENSING

- Environmental Report

The ER was completed and submitted to the NRC on March 1, 1978. In addition, application was submitted to the state of Michigan for national pollutant discharge elimination system (NPDES) permit.

- Technical Specifications

The technical specifications for Midland were submitted to the NRC in the February 1978 amendment of the FSAR.

LICENSING (continued)

● FSAR

The first batch of Round 1 NRC questions was received from the NRC.

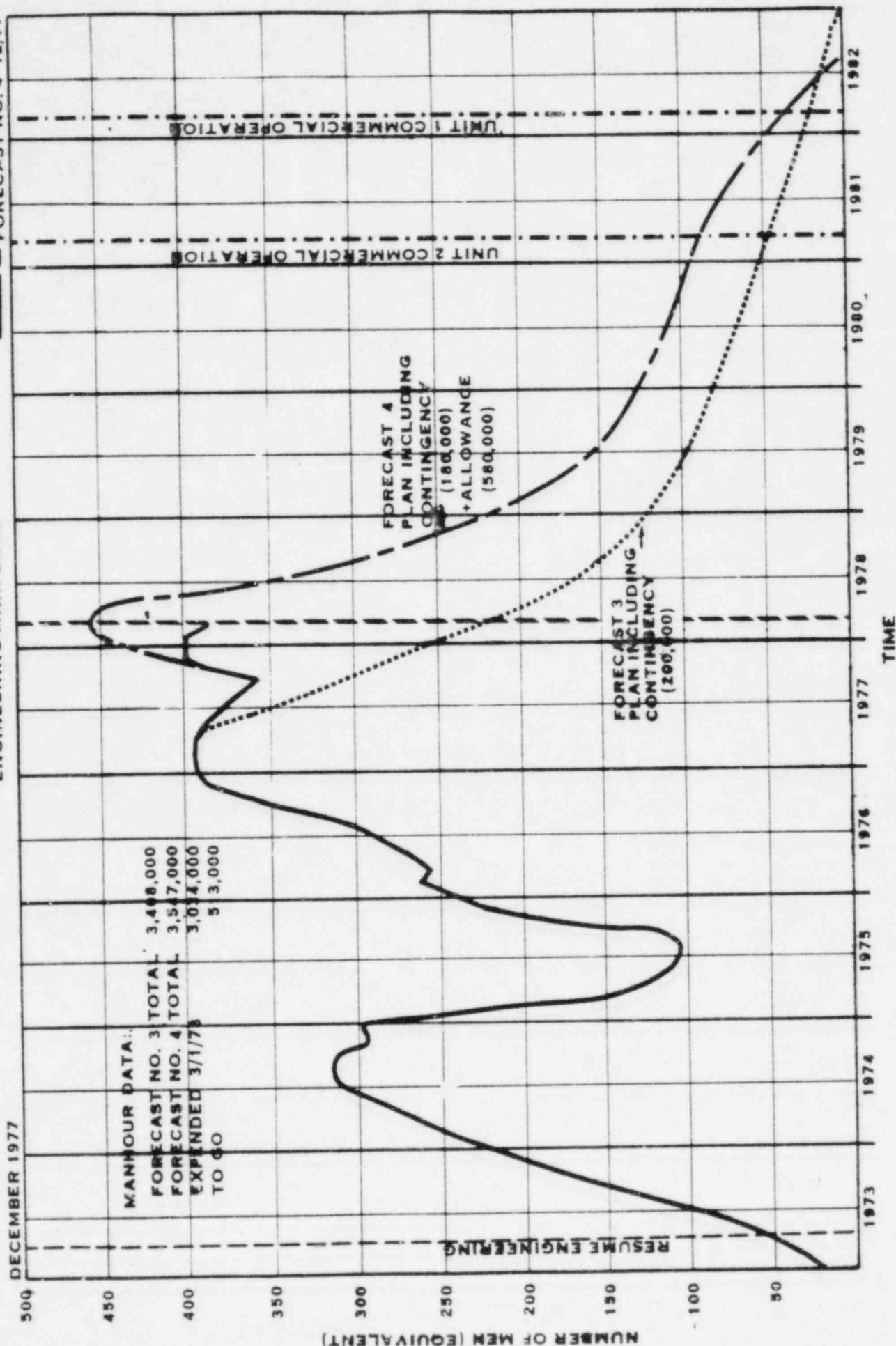
The electrical, instrumentation, and control systems branch questions were absent from the first batch of Round 1 questions, although they have significant input in the Round 0 questions concerning equipment qualifications and testing.

7220 - MIDLAND UNITS 1 & 2 - CONSUMERS POWER COMPANY

FORECAST NO. 4

ENGINEERING MANPOWER

— ACTUAL THRU 3/1/78
 FORECAST NO. 3 6/77
 — FORECAST NO. 4 12/77



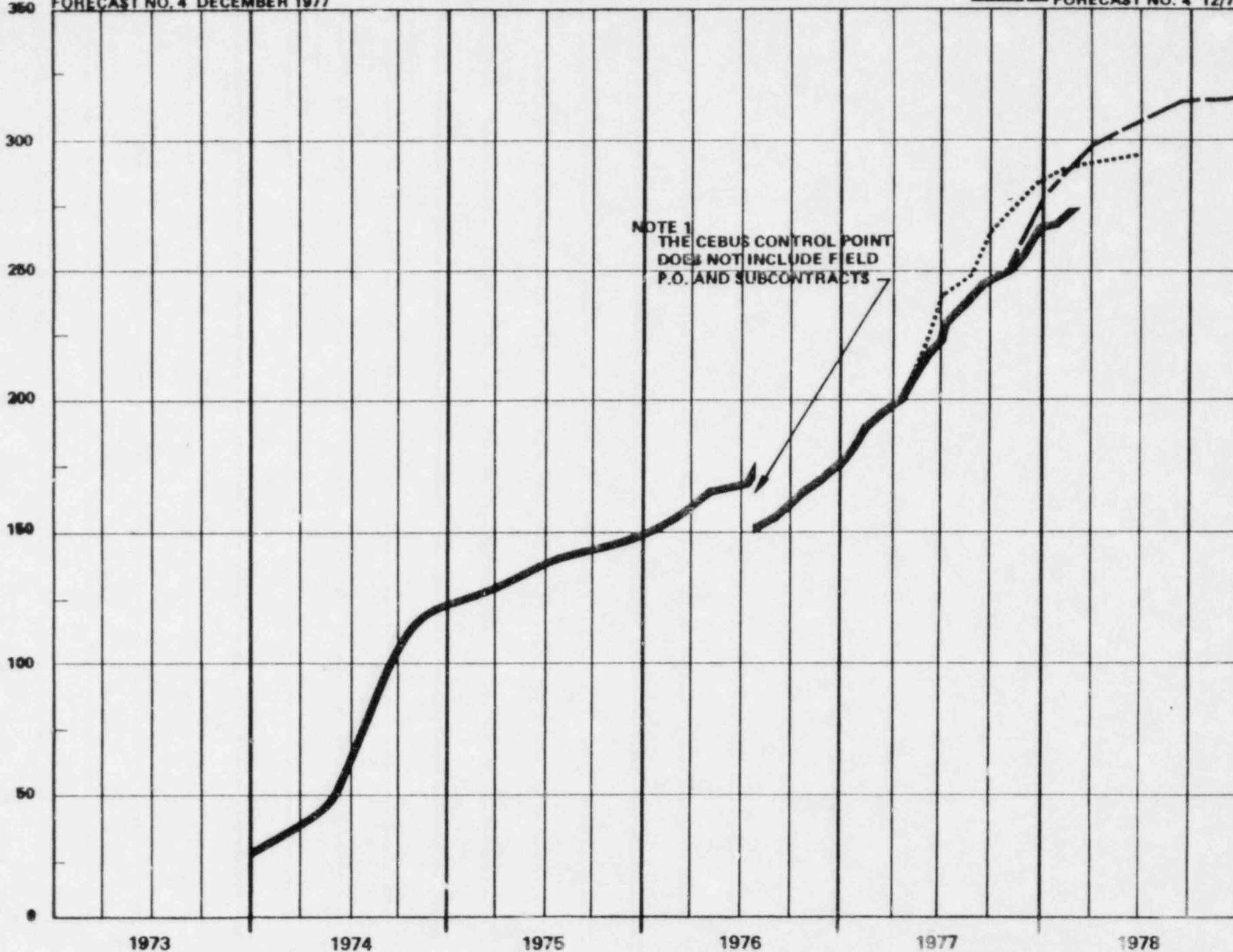


7220 - MIDLAND UNITS 1 & 2 - CONSUMERS POWER COMPANY
TOTAL PURCHASE ORDERS AND SUBCONTRACTS CURVES

———— ACTUAL THRU 2/17/78
..... FORECAST NO. 3 6/77
- - - - - FORECAST NO. 4 12/77

FORECAST NO. 4 DECEMBER 1977

6
QUANTITY



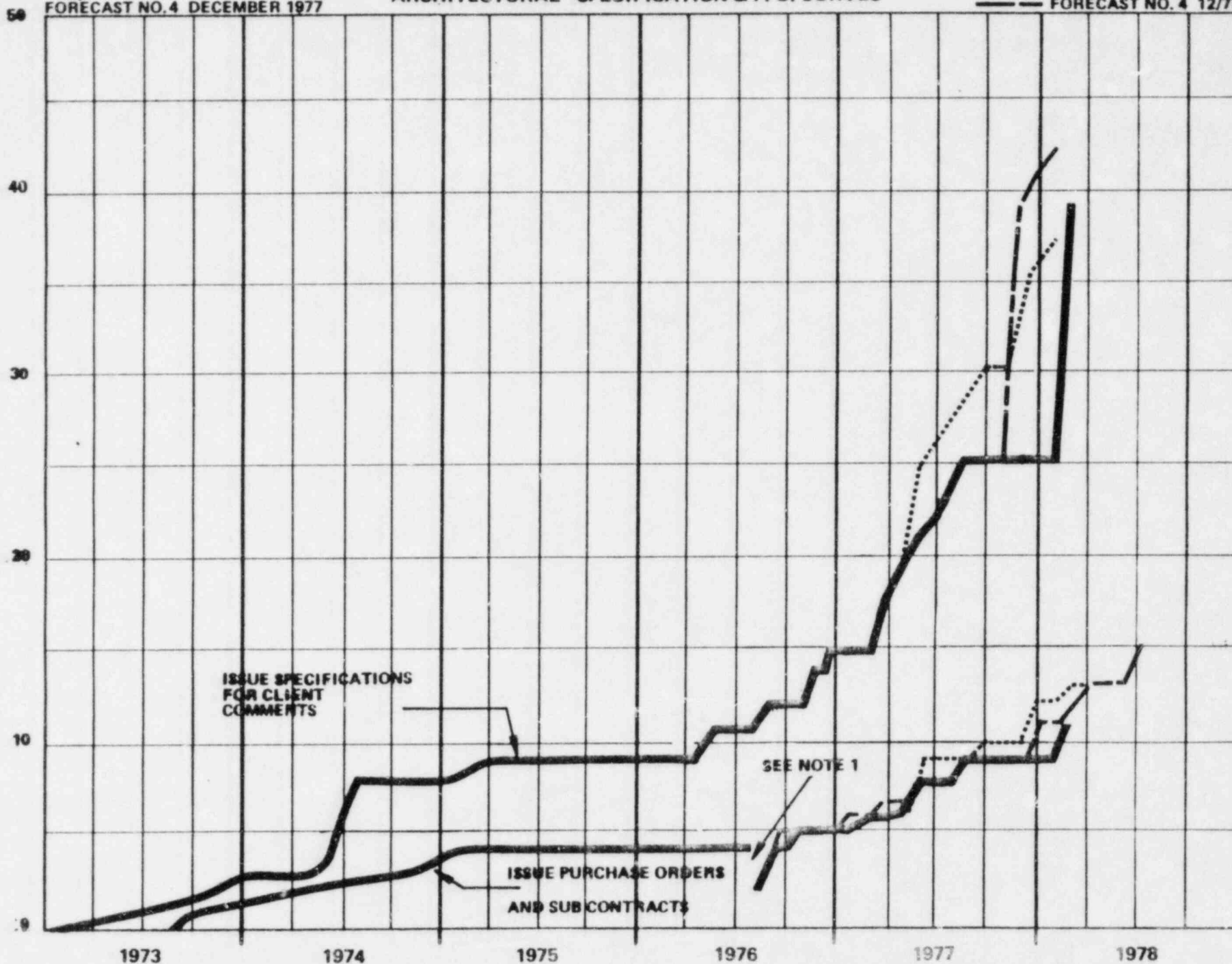


7220 - MIDLAND UNITS 1 & 2 - CONSUMERS POWER COMPANY
ARCHITECTURAL - SPECIFICATION & P. O. CURVES

— ACTUAL THRU 2/17/78
..... FORECAST NO. 3 6/77
- - - FORECAST NO. 4 12/77

FORECAST NO. 4 DECEMBER 1977

QUANTITY
10

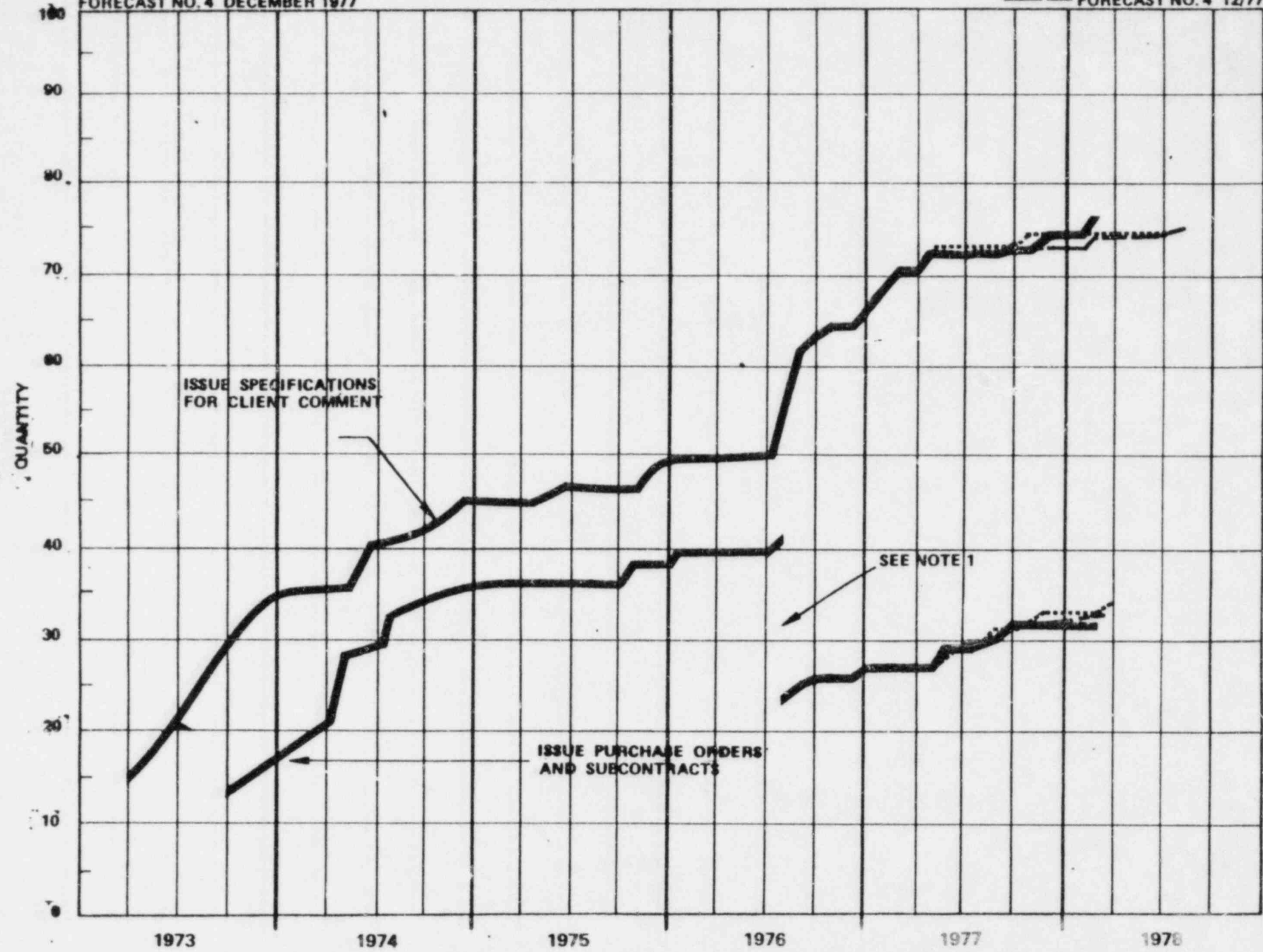




7220 - MIDLAND UNITS 1 & 2 - CONSUMERS POWER COMPANY
CIVIL SPECIFICATION & P. O. CURVES

— ACTUAL THRU 2/17/78
- - - - - FORECAST NO. 3 6/77
— FORECAST NO. 4 12/77

FORECAST NO. 4 DECEMBER 1977



ACTUAL THRU 2/17/78
 FORECAST NO. 3 6/77
 --- FORECAST NO. 4 12/77

7220 - MIDLAND UNITS 1 & 2 - CONSUMERS POWER COMPANY
 CONTROL SYSTEMS - SPECIFICATION & P. O. CURVES



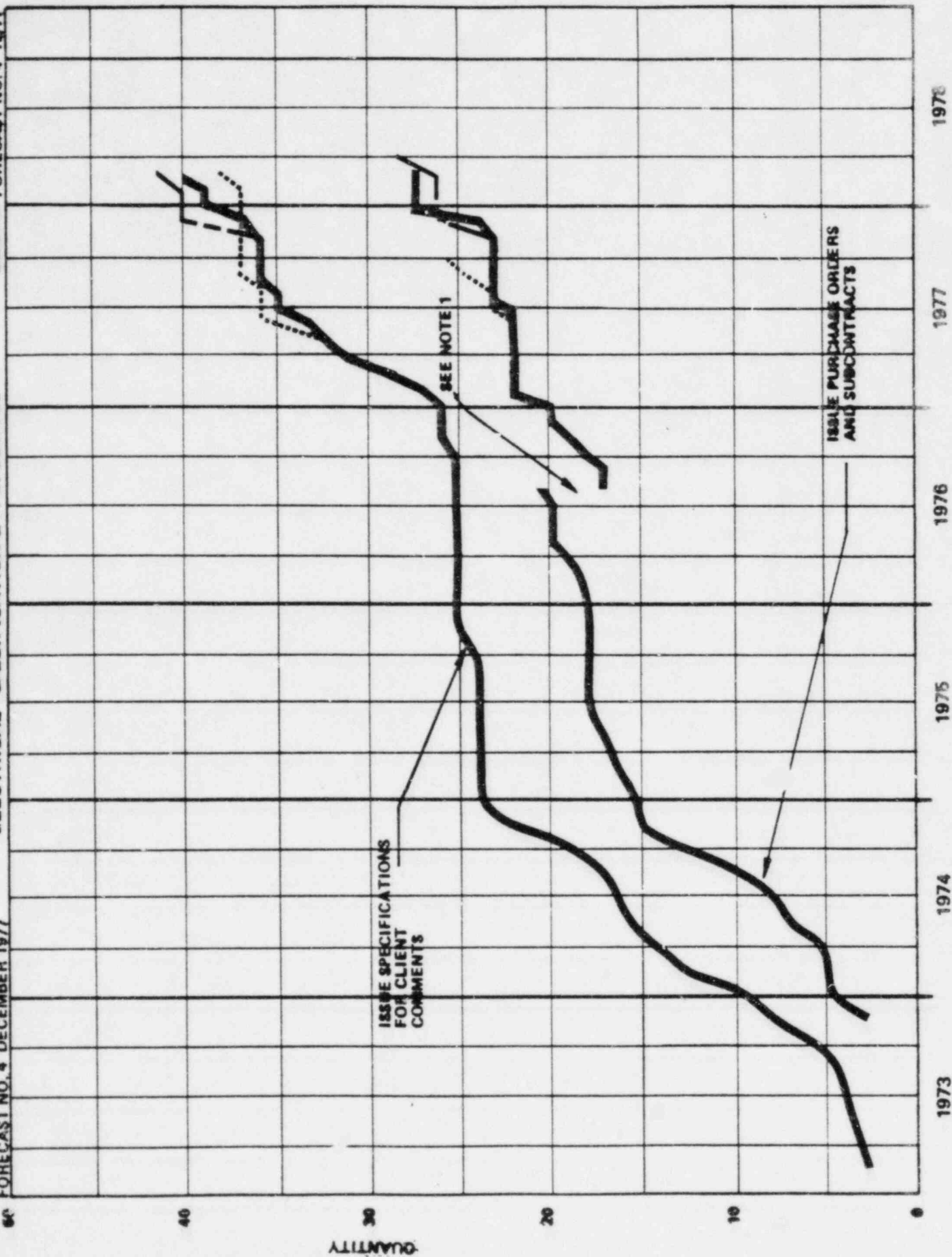


FORECAST NO. 4 DECEMBER 1977

7220 - MIDLAND UNITS 1 & 2 - CONSUMERS POWER COMPANY

ELECTRICAL - SPECIFICATION & P. O. CURVES

— ACTUAL THRU 2/17/78
- - - FORECAST NO. 3 6/77
- - - FORECAST NO. 4 12/77

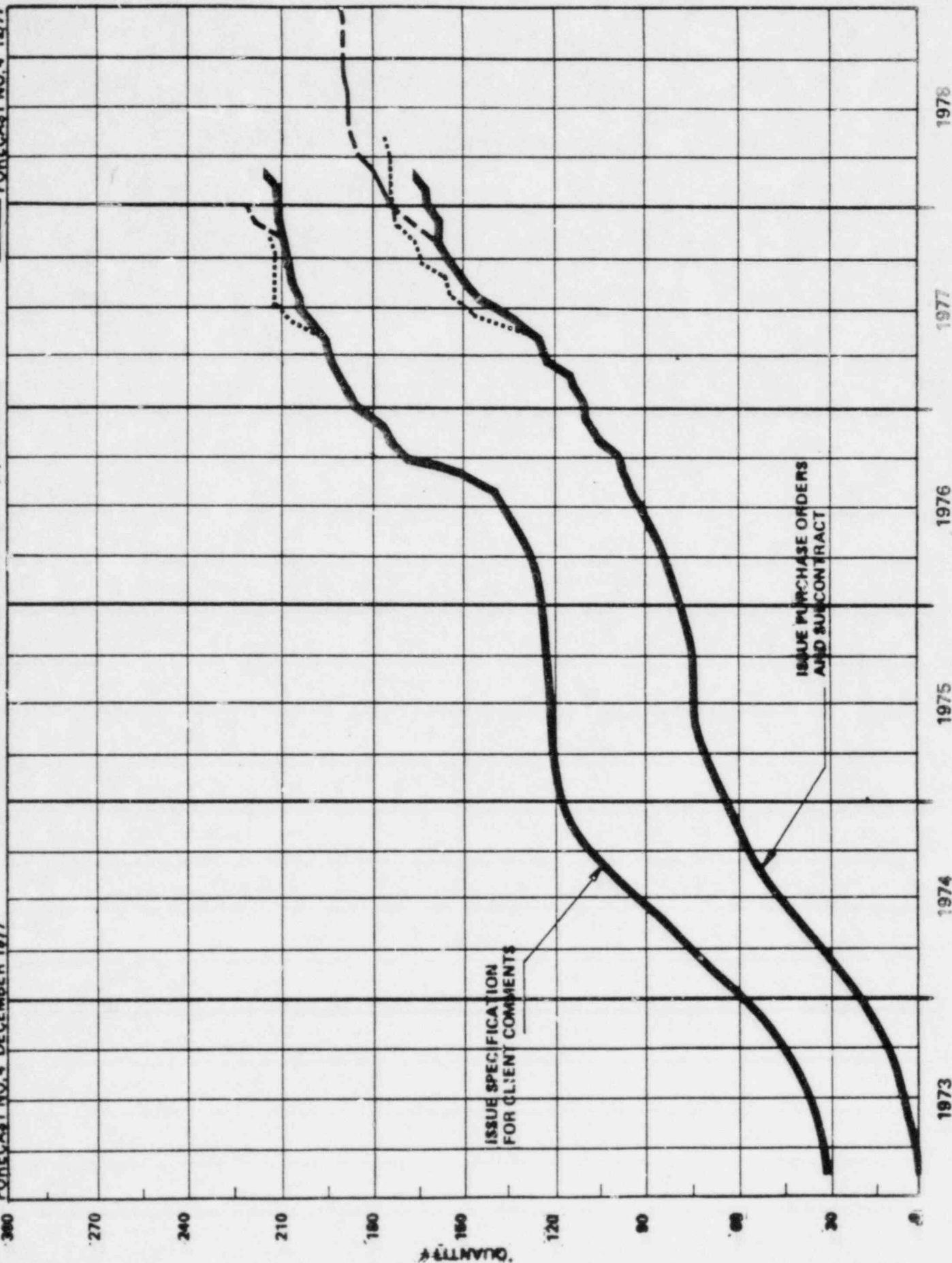




7220 - MIDLAND UNITS 1 & 2 - CONSUMERS POWER COMPANY
MECHANICAL SPECIFICATION & P. O. CURVES

FORECAST NO. 4 DECEMBER 1977

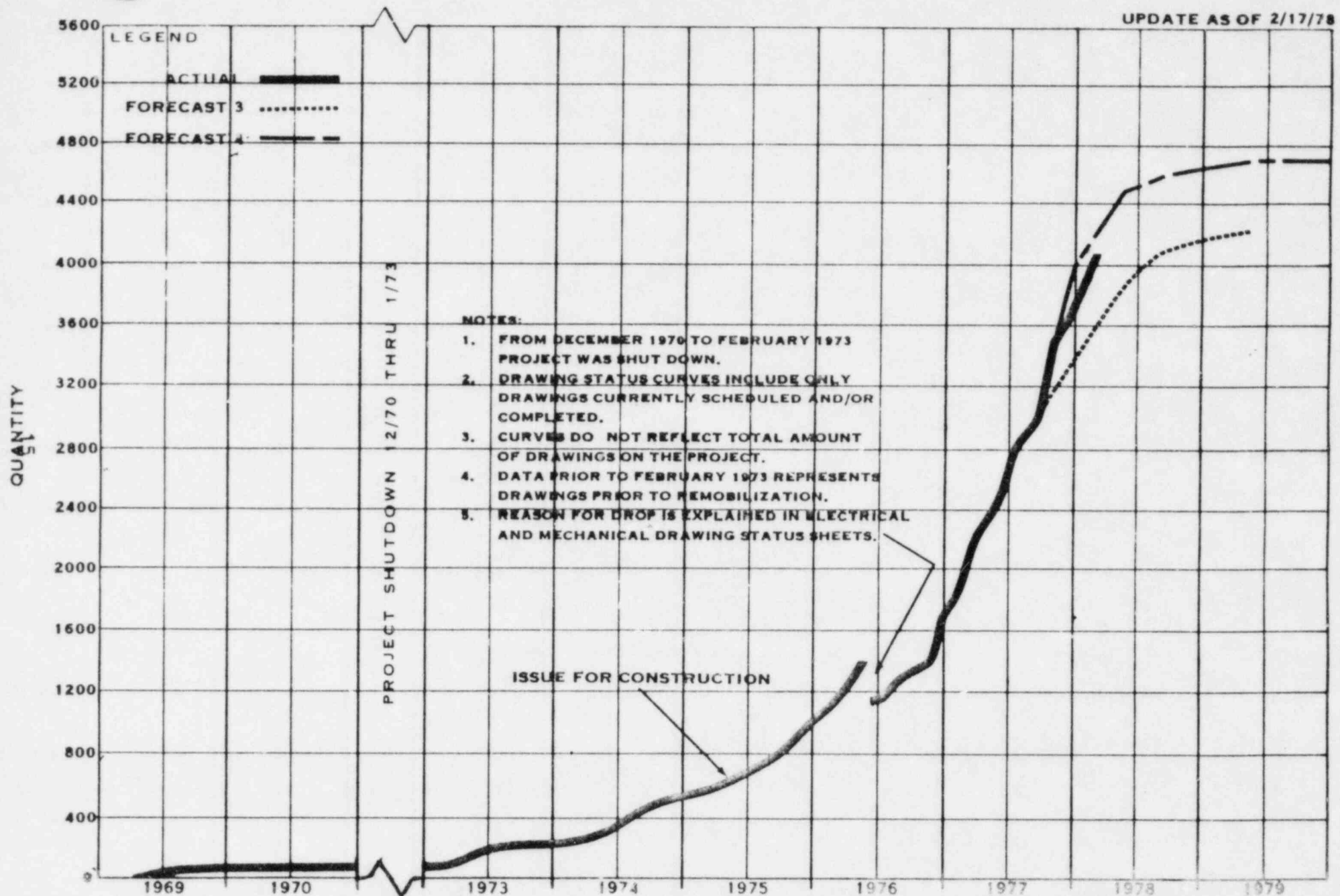
ACTUAL THRU 2/17/78
FORECAST NO. 3 6/77
FORECAST NO. 4 12/77



7220 - MIDLAND UNITS 1 & 2 - CONSUMERS POWER COMPANY
TOTAL PROJECT DRAWING STATUS CURVES



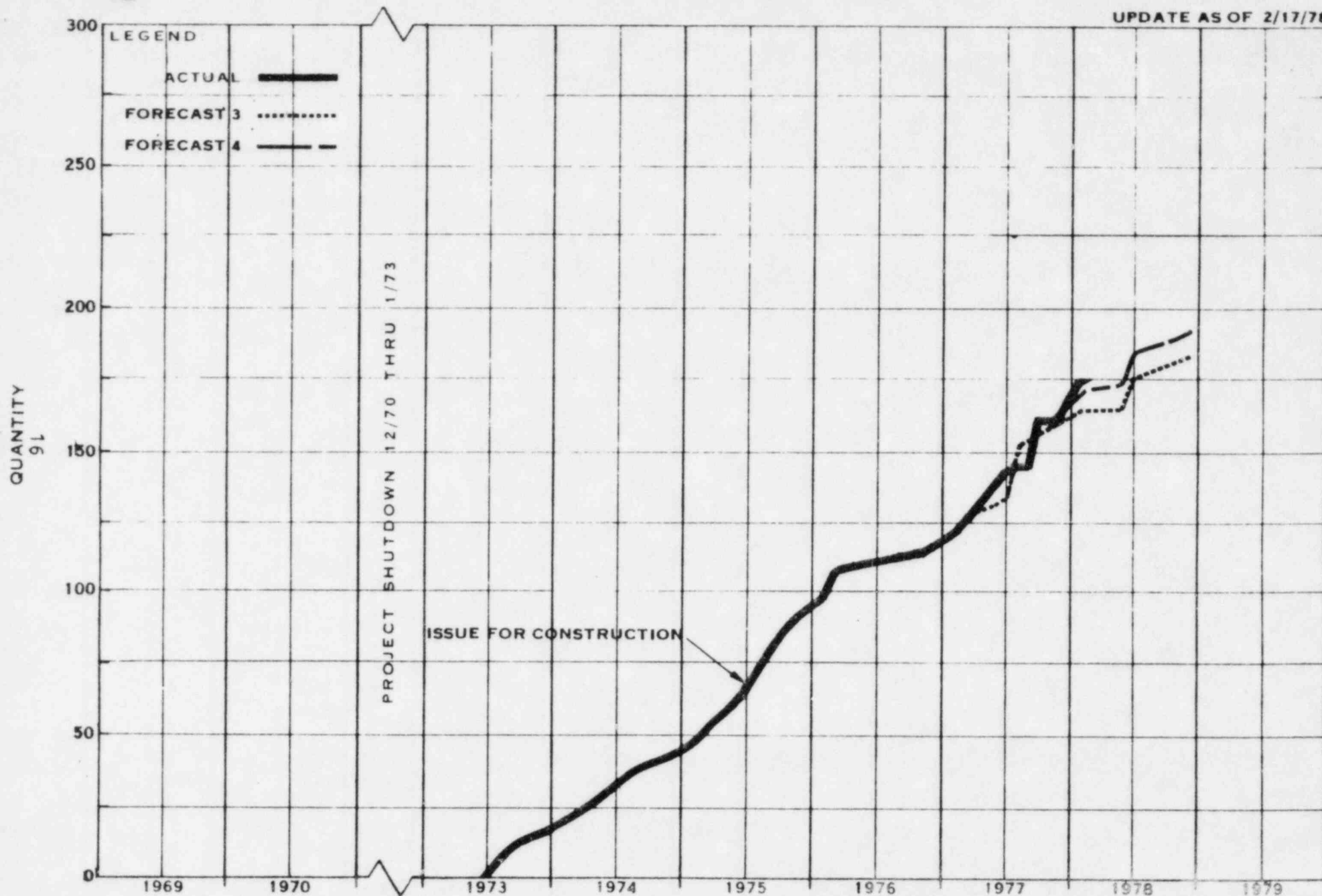
UPDATE AS OF 2/17/78





ARCHITECTURAL DRAWING STATUS CURVES

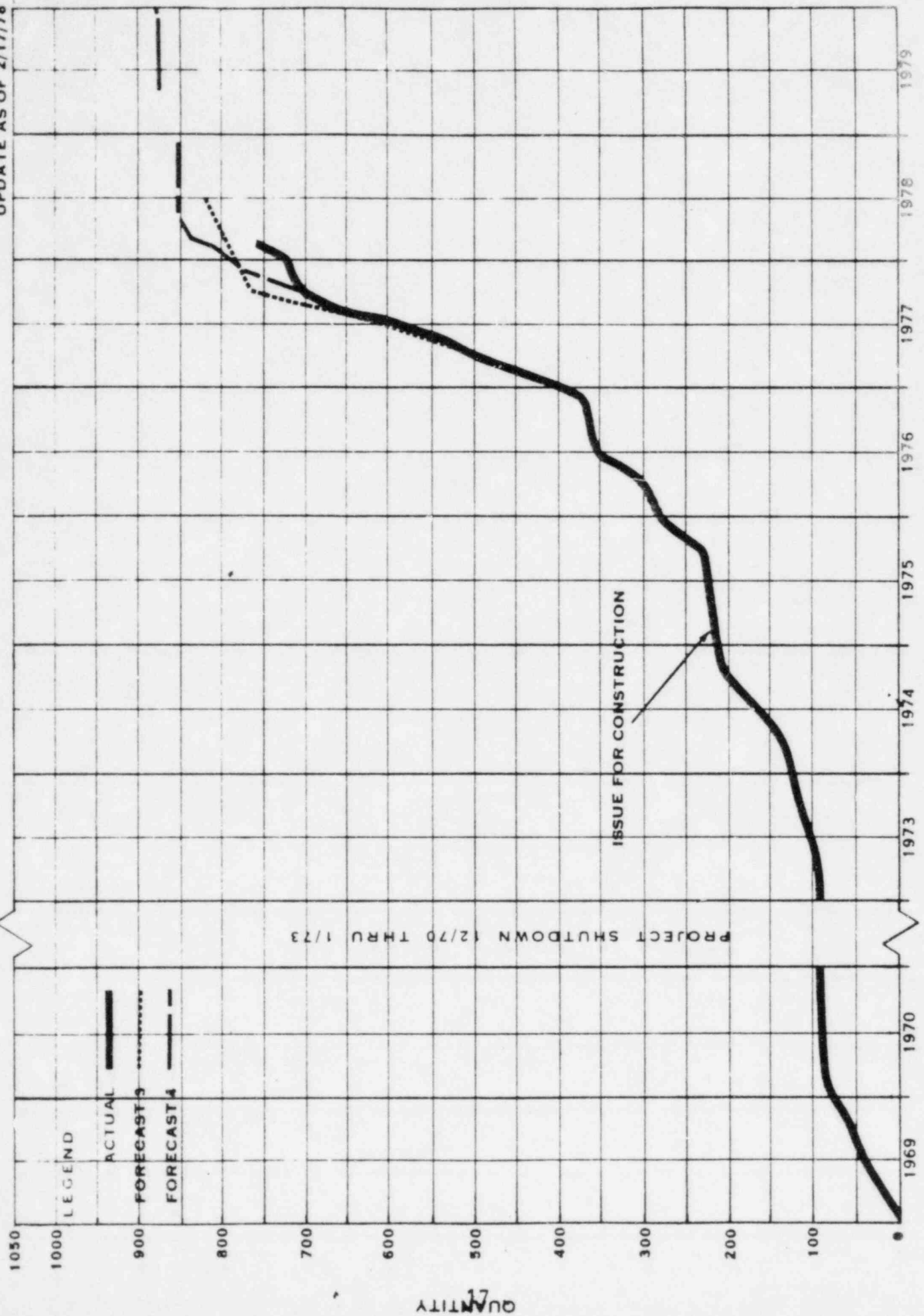
UPDATE AS OF 2/17/78





7220 - MIDLAND UNITS 1 & 2 - CONSUMERS POWER COMPANY
CIVIL DRAWING STATUS CURVES

UPDATE AS OF 2/17/78

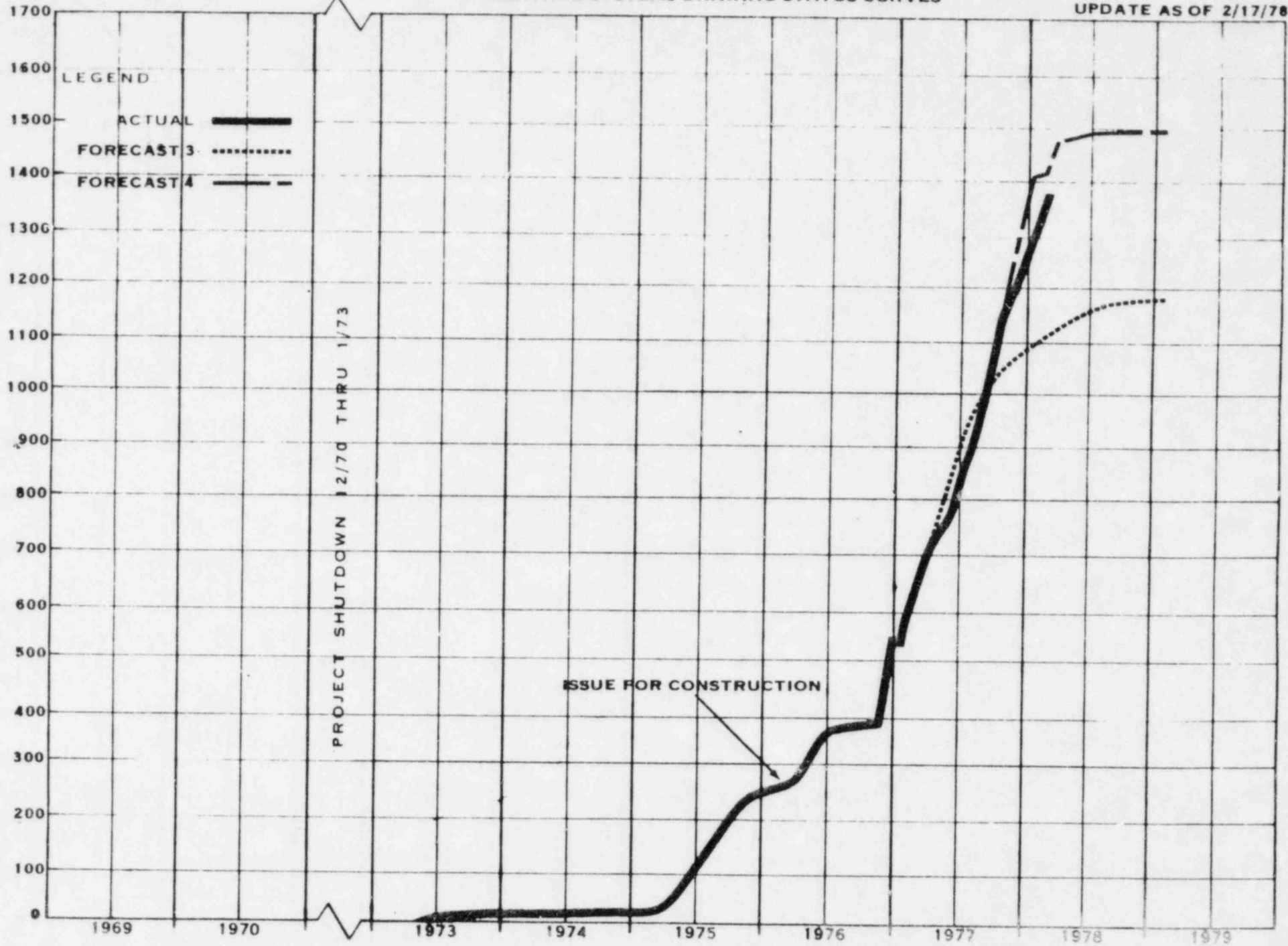




7220 - MIDLAND UNITS 1 & 2 - CONSUMERS POWER COMPANY
CONTROL SYSTEMS DRAWING STATUS CURVES

UPDATE AS OF 2/17/78

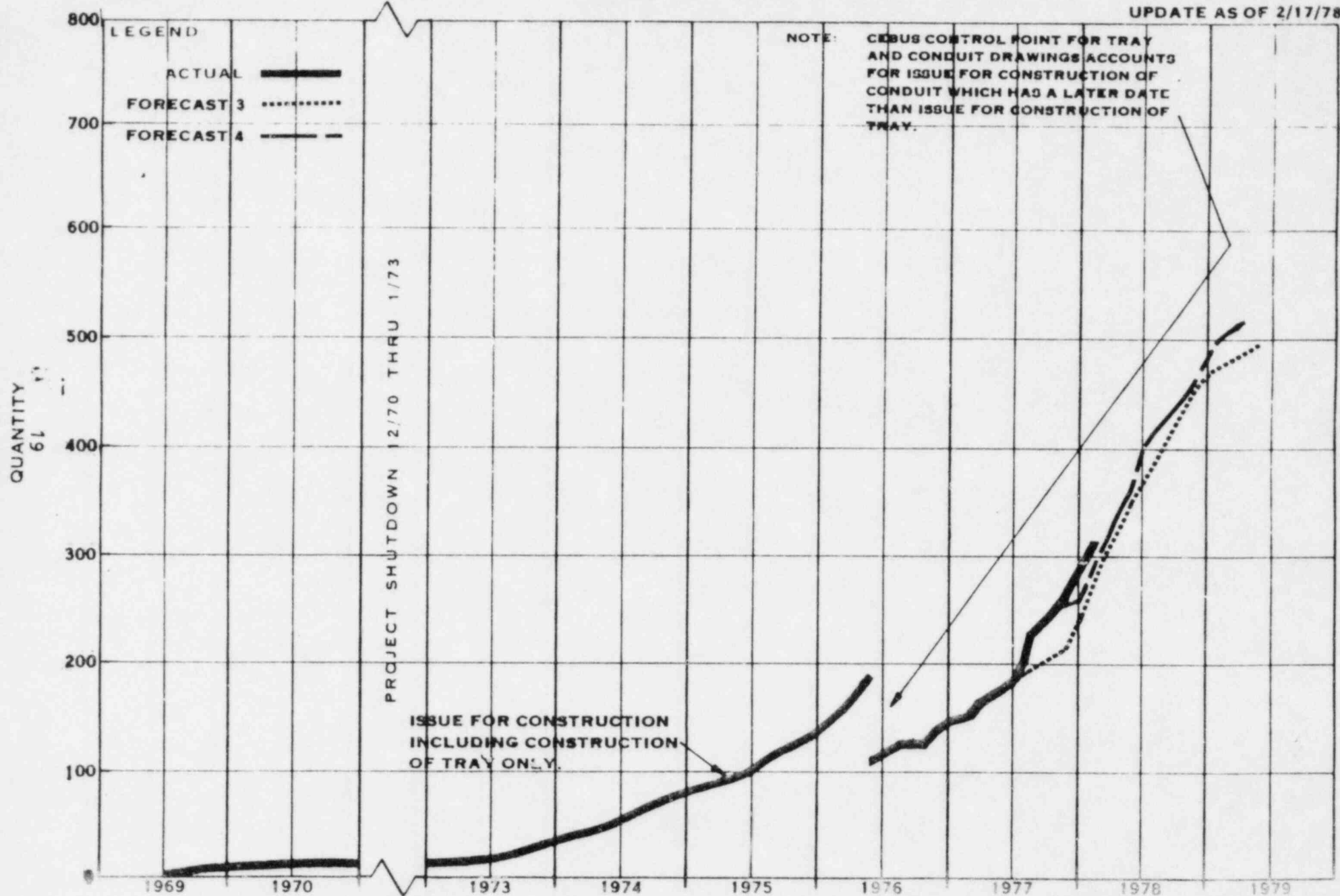
QUANTITY
81





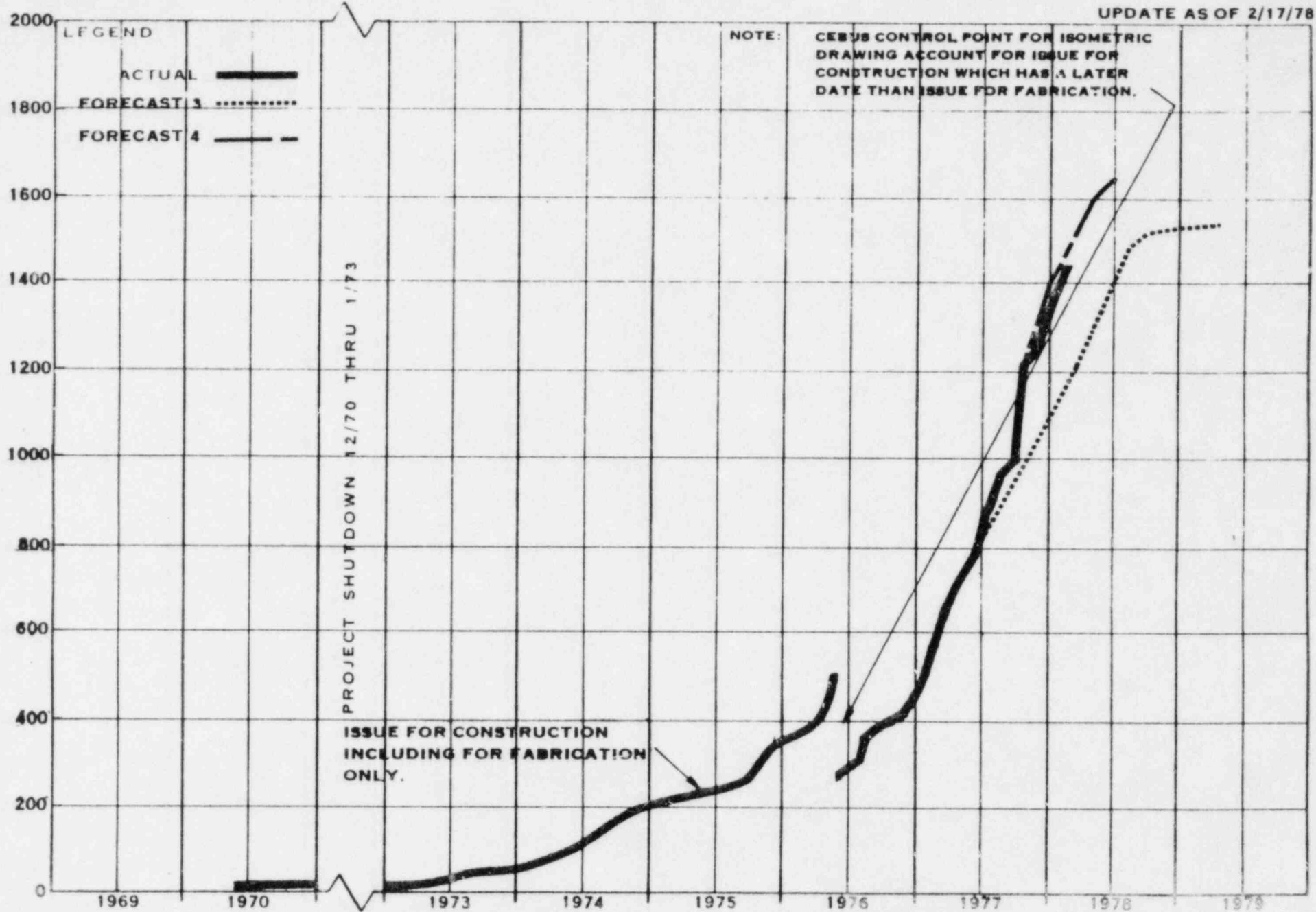
ELECTRICAL DRAWING STATUS CURVES

UPDATE AS OF 2/17/78



MECHANICAL AND PLANT DESIGN DRAWING STATUS CURVES

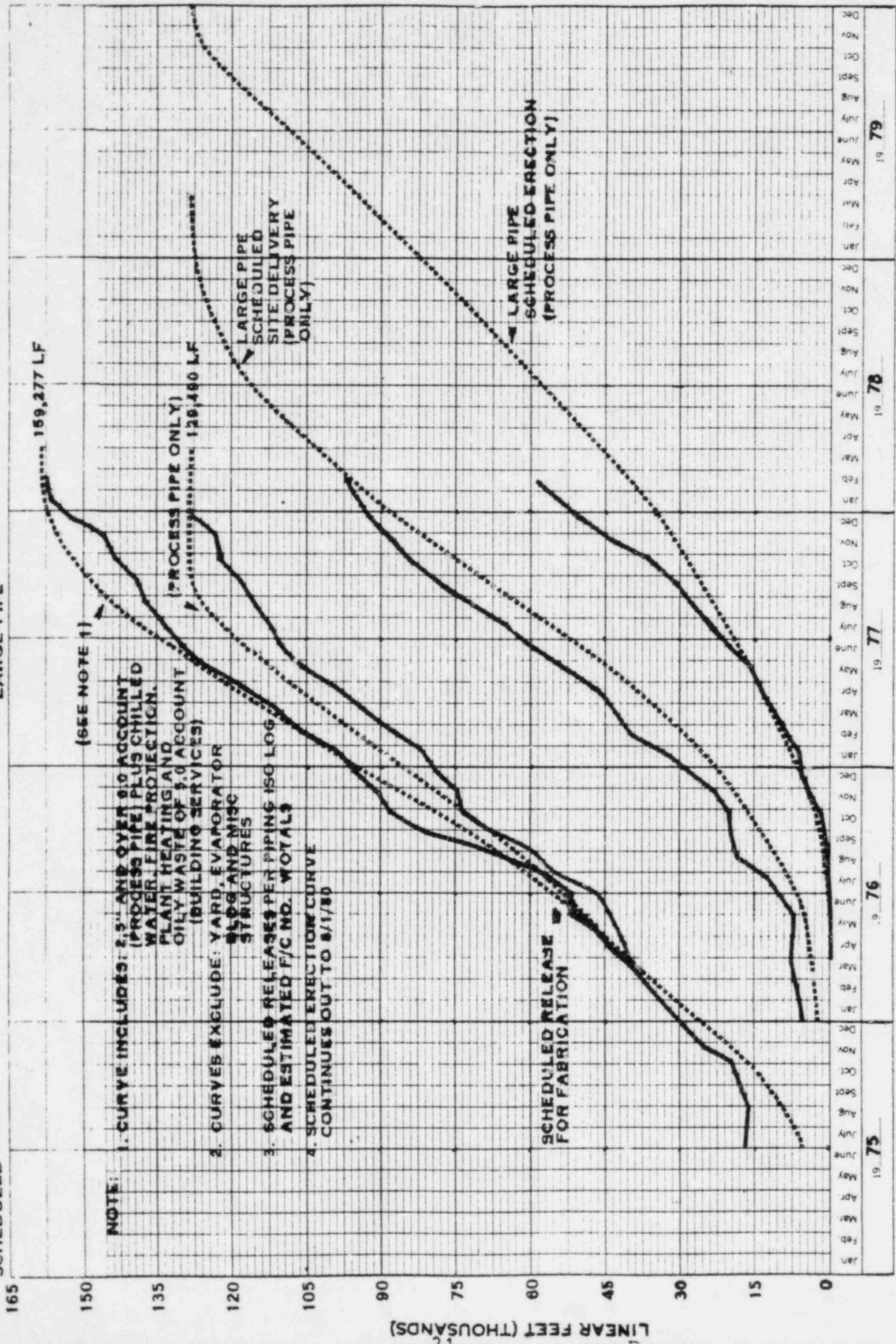
UPDATE AS OF 2/17/78



7220 - MIDLAND AND UNITS 1 & 2 - CONSUMERS POWER COMPANY

POWER BLOCK
LARGE PIPE

ACTUAL —————
SCHEDULED 165



PROCUREMENT STATUS REPORT

FEBRUARY 1978

PURCHASING

- Requests for bids were issued for the following:
 - Coaxial, triaxial, and twinaxial cable
 - 600 V high temperature power cable
 - Vibration monitoring instruments
 - Nonnuclear cast iron lined valves
- Bids were received for the following:
 - Hydrogen and nitrogen bulk gas storage
 - HVAC instrumentation
 - Nonnuclear cast iron lined valves
- Purchase orders were issued for the following:
 - HVAC instrumentation
 - Nonnuclear diaphragm valves
 - ANSI B31.1 carbon steel valves (3)
 - Nonnuclear cast iron lined valves
- Revisions to existing orders were issued for the following:
 - Structural steel
 - Welded steel stacks
 - Spent fuel pool gates
 - Main transformers
 - Station power transformers
 - Main control boards
 - Venturi tubes (general service)
 - Engineered safety isolation system
 - Programmable controller system
 - Unit 2 condenser
 - Auxiliary feedwater pumps and drivers
 - Radwaste and fuel pool filters
 - Miscellaneous nuclear tanks
 - Solid radwaste package
 - Shop fabricated piping (2)
 - Carbon steel nonnuclear valves
 - Stainless steel nuclear valves
 - Carbon steel nuclear valves (3)
 - Stainless steel nuclear valves (2)
 - Nuclear plug valves

PURCHASING (continued)

- Nuclear service pressure relief valves
- Expansion joints
- Stainless steel nonnuclear plug valves
- Iron removal system
- Recommendations for purchase were issued for the following:
 - General service butterfly and ball control valves
 - HVAC instrumentation
 - Auxiliary boiler feedwater pumps
- Proposals are in evaluation for the following:
 - New and spent fuel racks
 - Nuclear service diaphragm valves
 - Hydrogen and nitrogen bulk gas storage

EXPEDITING

- Areas of concern are:

Shop Fabricated Pipe (M-104-A & B)
ITT Grinnell, Kernersville, North Carolina

For the month of February 1978, vendor shipped 496 spools which exceeded Grinnell's commitment by 96 spools. Out of the 496 spools, only 63 were the urgently required spools. Expediting has informed Grinnell that the Vendor Status Report issued by the Midland jobsite must be followed closely. Grinnell informed Bechtel that total spools shipped per month will decrease, but improvement on shipment of urgently required spools will increase during the month of March.

Fabricated Pipe Supports (M-106-A)
ITT Grinnell, Warren, Ohio

For the month of February, Grinnell shipped 404 assemblies. The final 99 assemblies left the Warren plant on March 2, 1978. Grinnell's commitment for March is 400 assemblies.

EXPEDITING (continued)

Component Cooling Water Pumps (M-53)
Bingham-Willamette, Portland, Oregon

Casting delivery for cases, stuffing boxes, and impellers is now scheduled for April 28, 1978. Bingham is now quoting a July 24, 1978 shipping schedule for pumps. Bechtel and Bingham are negotiating an improved delivery to June 5, 1978 at a \$7,500 premium for Atlas Foundry. The current status is a request from Bingham that the premium charge be split. This proposal is currently in review.

• Continued Expediting Activity:

Expediting activity continues on the following orders to improve delivery in line with jobsite requirements:

C-70	M-56	M-331
J-201	M-61	
J-202	M-63	<u>All valve and pump orders</u>

• Orders shipped complete for the month of February are as follows:

E-7	M-24
E-1	M-59
E-8	M-62

• Purchase orders that have been area assigned for the month of February are as follows:

M-53 (Subsupplier, Atlas)
J-207

SUBCONTRACTS

- Subcontract 7220-M-332, Erection and Installation of Turbine Generator Equipment, was issued and forwarded for signature on March 6, 1978. An advance installation planning meeting has been scheduled for March 21, 1978, at the jobsite with construction, PSI, and General Electric.

SUBCONTRACTS (continued)

Subcontract 7220-M-175, Carbon Dioxide Fire Protection Systems bid due date has been extended to March 22, 1978, as inclement weather and late receipt of necessary information from the systems supplier made it impossible for bidders to meet their due date.

SUPPLIER QUALITY

- Seven assignments were made in February.
- Fourteen assignments were closed during February.
- Supplier quality surveillance continues on 203 open assignments.

CONSTRUCTION STATUS REPORT

FEBRUARY 1978

GENERAL

Total plant large process pipe is approximately 42 percent complete and total plant tray is 29 percent complete.

Construction completion is estimated to be 39 percent complete based on Forecast #4 manhours and quantities.

MANPOWER LEVELS

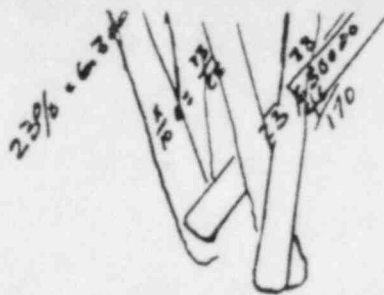
	Monthly Average	Average for W/E 3-3-78
Bechtel Manual	2,251	2,257
Bechtel Nonmanual	540	533
Subcontractor	70	83
TOTAL ON PROJECT	2,852	2,873

REACTOR BUILDING UNIT 1

- Placed concrete for the north secondary shield wall to 634'.
- Piping and flued head installation remain in progress with approximately 29 percent of the large pipe installed.

REACTOR BUILDING UNIT 2

- Placed concrete for the north secondary shield wall to 685', the south secondary shield wall to 672', a slab at 640', and completed through the twenty-third lift of the liner plate repair.
- Installed refueling pool ventilation ducts and landed the reactor coolant pump drain tank.
- Completed installation of the weld neck flanges.
- Installation of large process pipe and cable tray continues with 39 and 16 percent installed respectively.



AUXILIARY BUILDING

- Placed concrete for slabs and walls at 685' and 695' in the control tower area, a slab at 659' in the west wing area, and a wall at 674' in the east wing area.
- Completed installation of the overhead crane rails and set auxiliary feedwater pumps at 584'.
- Large process pipe, tray, and conduit installation remain in progress with 61, 23, and 7 percent installed respectively.

53,010 ——— 25,000 ——— 28,000

TURBINE BUILDING UNIT 1

- Began installation of cable tray and continued installation of large process piping with 18 percent of the piping installed.

TURBINE BUILDING UNIT 2

- Installation of large process pipe, cable tray, and conduit are in process with 46, 86, and 5 percent installed respectively.

YARD & MISCELLANEOUS STRUCTURES

- Placed concrete for walls in the service water intake structure (partial), walls to 634' and a diesel generator pad in the diesel generator building, slab at 634' in the evaporator building, a slab at 648' in the administration building, and pad perimeter wall for the Unit 2 main transformer.
- Installed cooling pond makeup pumps, screen wash pumps, and began installation of the low-pressure evaporators in the evaporator building.

MAJOR EQUIPMENT RECEIVED

- Motor control centers (E-7)
- Major instrument package (J-204)
- Circulating water pumps (M-4C)

MAJOR EQUIPMENT RECEIVED (continued)

- Air handling units (M-160)
- Pressurizer heater control centers (E-8)
- Preferred ac power supplies (E-19)
- Electrical penetrations (E-20)
- Main control boards (J-201)

BECHTEL

7220 - MIDLAND UNITS 1 & 2 - CONSUMERS POWER COMPANY

FORECAST NO. 4

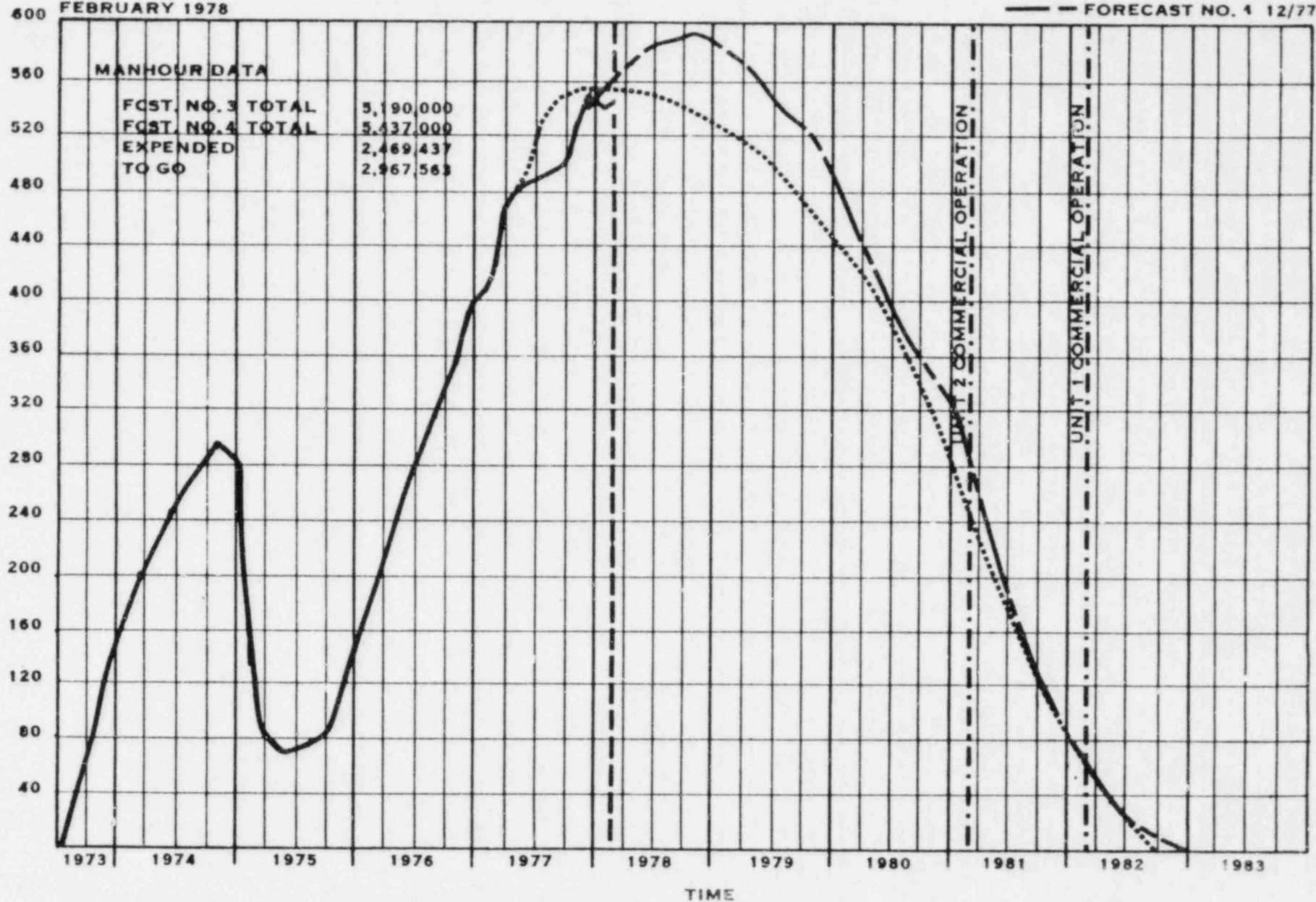
TOTAL BECHTEL FIELD NON-MANUAL LABOR

— ACTUAL-THRU 2/24/78
..... FORECAST NO. 3 6/77
- - - FORECAST NO. 4 12/77

FEBRUARY 1978

MANHOUR DATA

FCST. NO. 3 TOTAL	5,190,000
FCST. NO. 4 TOTAL	5,437,000
EXPENDED	2,469,437
TO GO	2,967,563



7220 - MIDLAND UNITS 1 & 2 - CONSUMERS POWER COMPANY

FORECAST NO. 4

TOTAL BECHTEL FIELD MANUAL LABOR
NO. OF PEOPLE ON PAYROLL

— ACTUAL THRU 2/24/78
..... FORECAST NO. 3 6/77
- - - FORECAST NO. 4 12/77

FEBRUARY 1978

MANHOUR DATA:

FORECAST NO. 3 TOTAL	15,622,680
FORECAST NO. 4 TOTAL	16,864,200
EXPENDED TO GO	7,321,788
	9,542,412

CASH FLOW
LIMITATIONS

LABOR STRIKE

LABOR STRIKE

LABOR STRIKE

FUEL LOAD UNIT 2

FUEL LOAD UNIT 1

MANPOWER

TIME

1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983



7220 - MIDLAND UNITS 1 & 2 - CONSUMERS POWER COMPANY

FORECAST NO. 4

CONCRETE PLACEMENT

FEBRUARY 1978

— ACTUAL THRU 2/24/78

..... FORECAST NO. 3 6/77

- - - FORECAST NO. 4 12/77

CONCRETE DATA

FCST. NO. 3 TOTAL 171,700 CY

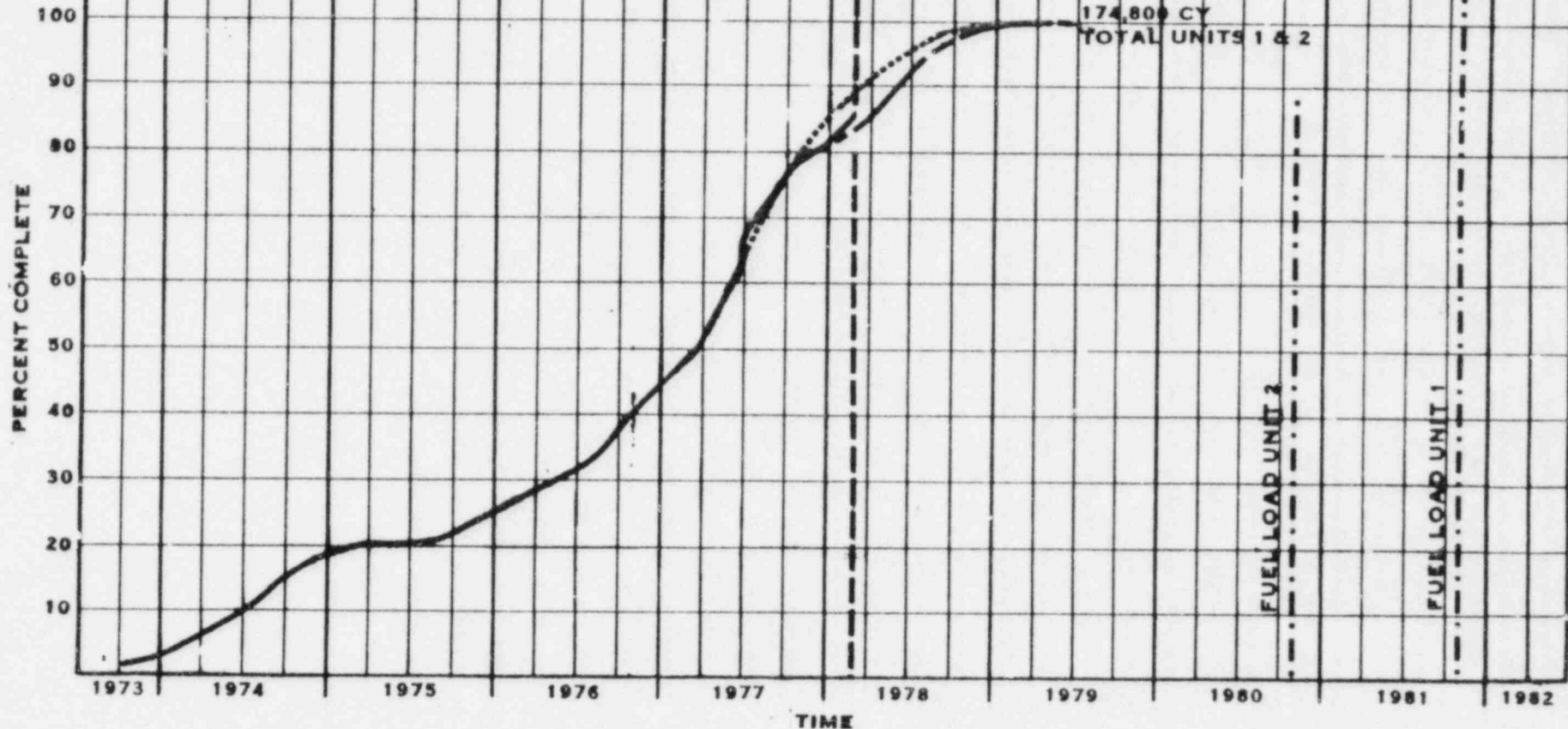
FCST. NO. 4 TOTAL 174,800 CY

PLACED TO DATE 148,781 CY

TO GO QUANTITY 26,019 CY

NOTE:

THE TO-DATE QUANTITY EXCLUDES
MUDMATS, WEARSLABS, BACKFILL,
TEMP. CONSTRUCTION AND CONCRETE
PLACED BY SUBCONTRACTORS



DIVISION SERVICES STATUS REPORT

FEBRUARY 1978

COST ENGINEERING

- The Client Reporting and Equivalency Program (CREP) was installed on the jobsite computer and is now available for project use.
- Consumers was provided with continued support in negotiations with Dow.
- Quantity and pricing development for Forecast #5 continued.
- Five engineering studies were completed. Major studies included the Environmental Report Alternative Discharge System Study and a Comparative Study of Valves With or Without Motor Operators.

PLANNING AND SCHEDULING

- Development of construction intermediate networks and associated CPM was continued.
- Analysis of and project schedule interfacing with the Consumer's startup schedule was continued.

ENGINEERING PLANNING/TRENDING

- Engineering planning provided forecasted engineering releases to the procurement critical items punch list.

QUANTITY TRACKING

- Preliminary Forecast #5 pipe log details and summaries was received. Reviewed these in detail, made appropriate adjustments and allowances, and assembled the final QTS input to Forecast #5.
- Reissued the "to be designed" pipe list after meeting with plant design.
- Resolved cable quantities for Midland Units 1 & 2 by meeting with electrical engineering personnel.

QUANTITY TRACKING

- Updating electrical QTS file to indicate the Forecast #5 quantities of 24,740 cables plus 1,000 QTS allowance for a grand total of 25,740 cables. This total includes estimates and allowances by both engineering and division services groups for current plant scope.
- Began evaluation of manual valve cross-referencing of Consumer operations numbering system on valve QTS file in response to Consumers' request.
- Valve QTS file updated for use in Forecast #5 development.

CASH FLOW CURVE

(LATER)

COST TREND REPORT SUMMARY

Report #75-33

FEBRUARY 1978

	(\$1,000s)	
	<u>Scope</u>	<u>Other</u>
1. <u>Automatic Steam Transfer System</u> <u>(#75-7)</u>	360	
Reevaluated engineering portion of trend for scope change submission. Engineering increased 14,000 mhs since trend was originated.		
2. <u>Forecast #3 Developments (#75-249)</u>		(605)
Adjustment to Forecast #3 closing due to deleting duplicated miscellaneous trend item in #75-259.		
3. <u>Miscellaneous Trends (#75-259)</u>		605
Deleted negative trend for RPV insulation subcontract (included in Trend #75-260).		
4. <u>Miscellaneous Trends Under \$50,000</u> <u>(#75-296B)</u>	130	(130)
Shifted total from scope to other due to posting error.		
5. <u>River Mixing Zone Studies (#75-297)</u>	50	
Increased total trend to reflect updated cost information as developed for scope change request.		
6. <u>Main Steam Stop Valves Support Steel</u> <u>in Turbine Building (#75-305)</u>		960
Revised trend to reflect later field estimate of total work required.		

COST TREND REPORT SUMMARY (continued)

		(\$1,000s)	
		<u>Scope</u>	<u>Other</u>
7.	<u>Primary Water Storage Tank Oxygen Control (#75-307)</u> Transferred trend to scope item per CPCo telcon to Bechtel.	400	(400)
8.	<u>Startup Engineering - CCo #8 (#75-308)</u> Deleted item from Bechtel scope of work. This is included in CPCo testing budget.	(80)	
9.	<u>Engineering Allowance (#75-332A)</u> Deletion of 14,000 engineering manhours from allowance due to addition of same to Trend #75-7.	(360)	
10.	<u>Concrete Block Walls (#75-345)</u> Revised trend total to credit reduced blockwork quantities in auxiliary building, and credit for deleted subcontract.		(1,240)
11.	<u>Containment 1 and 2 Dome and Interior Wall Concrete (#75-349)</u> Decrease in dome concrete actual labor, and increased labor for pouring and finishing interior walls.		210
12.	<u>Evaporator Building Structural Steel (#75-350)</u> Increase in steel boltups resulted in increased labor unit rates.		290
13.	<u>Flued Heads (#75-351)</u> Final field takeoff of flued head quantities and unit rate (particularly welding portion) results in increased labor for installation of revised total.		760
Total		500	450

PROJECT TRENDS

(LATER)

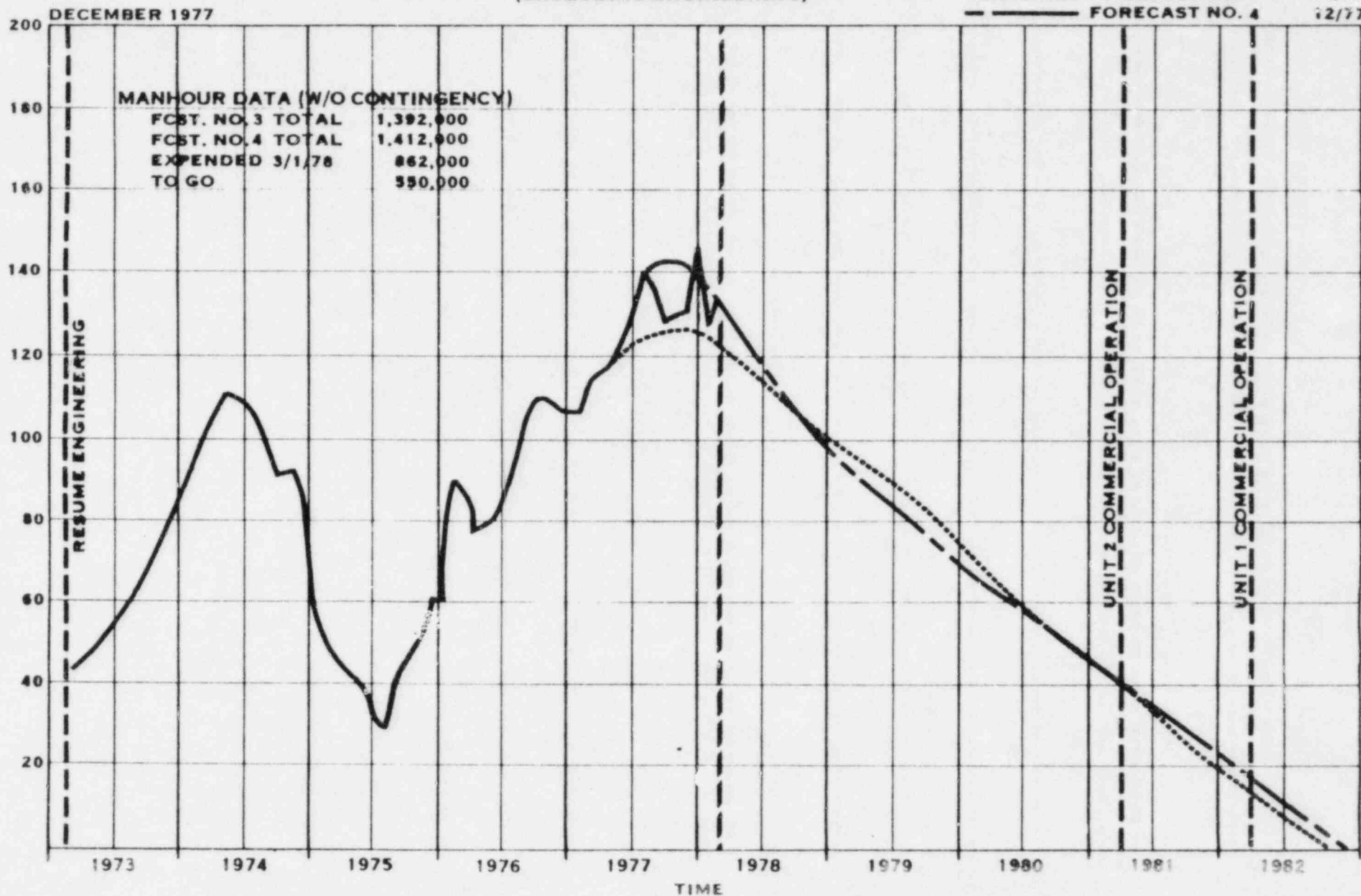


7220 MIDLAND UNITS 1 & 2 - CONSUMERS POWER COMPANY

FORECAST NO. 4

TOTAL HOME OFFICE MANPOWER
(EXCLUDING ENGINEERING)

———— ACTUAL THRU 3/1/78
..... FORECAST NO. 3 6/77
- - - - - FORECAST NO. 4 12/77



MSS EXCEPTION REPORT

FEBRUARY 1978

(MSS UPDATE OF FEBRUARY 28, 1978)

<u>MSS Line No.</u>	<u>Area</u>	<u>Activity Description</u>	<u>Total Months+ Delay Since F/C #1</u>	<u>Change* Since Last Update</u>	<u>Remarks</u>
2	Site	Fill cooling pond	1	-	CSS Line 121 Node 5
9	Turbine Building Unit 2	Piping and instrumentation	(3)	1	CSS Line 74 Node 3
10	Turbine Building Unit 2	Cable tray and conduit	(6-1/2)	0	CSS Line 80 Node 2
12	Reactor Building Unit 2	Civil structural - interior complete to El. 659'	(1)	0	CSS Line 44 Node 5
13	Reactor Building Unit 2	NSSS equipment Complete NSSS set	1/2	-	CSS Line 47 Node 3 Reflects actual progress
14	Reactor Building Unit 2	Mechanical and electrical equipment	(1/2)	1/2	CSS Line 50 Node 5
15	Reactor Building Unit 2	Piping and instrumentation	(1)	0	CSS Line 53 Node 3 Reflects actual progress
16	Reactor Building Unit 2	Cable tray and conduit	(6-1/2)	0	CSS Line 58 Node 1
17	Auxiliary Building	Civil-Structural Close in	7	(1)	CSS Line 1 Node 4 CSS Line 5 Node 2
18	Auxiliary Building	Computer equipment and control boards Start installation	11-1/2	0	CSS Line 12 Node 1 Reflects delayed panel delivery
20	Auxiliary Building	Mechanical and electrical equipment	3	0	
21	Auxiliary Building	Piping and instrumentation	2	(0)	CSS Line 21 Node 1 CSS Line 19 Node 4
22	Auxiliary Building	Cable tray and conduit Start conduit	4	(0)	CSS Line 24 Node 3 CSS Line 25 Node 1 Tray 3 months behind F/C #1 Conduit 7-1/2 months behind F/C #1

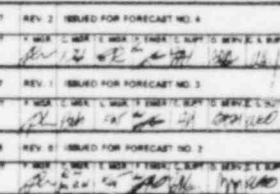
MSS Line No.	Area	Activity Description	Total Months+ Delay Since F/C #1	Change* Since Last Update	Remarks
23	Yard	Administration building and gate house Erect structural steel	(3)	0	CSS Line 171 Node 6
25	Yard	River and cooling pond structures Complete substructures	6	3	CSS Line 156 Node 2
27	Electrical Unit 2	Raceway and circuit schedule Complete raceway-schedule	3	0	ESS Line 147 Node 9
28	Electrical Unit 2	Wire and cable Start auxiliary building	8	0	CSS Line 27 Node 1
29	Electrical Unit 2	Connections Start connections	7	0	CSS Line 28 Node 1
31	Turbine Building Unit 1	Civil basemat Complete elevated slabs	(5-1/2)	0	CSS Line 105 Node 6
33	Turbine Building Unit 1	Structural steel Complete close-in and siding	(5)	0	CSS Line 106 Node 6
37	Turbine Building Unit 1	Piping and instrumentation	(4)	0	CSS Line 114 Node 2
40	Reactor Building Unit 1	Civil-Structural interior Complete concrete to El. 646'	2	0	CSS Line 84 Node 6
41	Reactor Building Unit 1	NSSS equipment Start NSSS set	3	0	CSS Line 87 Node 2
42	Reactor Building Unit 1	Mechanical and electrical equipment	(4)	0	CSS Line 90 Node 6
43	Reactor Building Unit 1	Piping and instrumentation	(10)	0	CSS Line 93 Node 4
45	Evaporator Building	Erect superstructure	(10)	(7)	CSS Line 171 Node 6
47	Electrical Unit 1	Raceway and circuit schedule Complete raceway schedule	5	0	ESS Line 227 Node 10

+ Total delay with respect to Forecast #1 current to MSS update of February 28, 1978.

* Change since previous MSS update of January 31, 1978. Parentheses () denote schedule improvement.

- Activity added or revised this update.

AREA	ACTIVITY DESCRIPTION	S/N	1973												1974												1975												1976											
			J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M							
LICENSE	N.R.C. PERMITS & LICENSES	1																																																
SITE	SITE PREPARATION & EXCAVATION	2																																																
UNIT 2 AND COMMON	CIVIL-BASE MAT, WALLS & ELEVATED SLABS	3																																																
	CIVIL-PEDESTAL	4																																																
	STRUCTURAL STEEL	5																																																
	TURBINE GENERATOR & AUXILIARIES	6																																																
	CONDENSER	7																																																
	MECHANICAL & ELECTRICAL EQUIPMENT	8																																																
	PIPING & INSTRUMENTATION	9																																																
	CABLE TRAY & CONDUIT	10																																																
	CIVIL STRUCTURAL-EXTERIOR	11																																																
	CIVIL STRUCTURAL-INTERIOR	12																																																
REACTOR BUILDING	N.S.S. EQUIPMENT	13																																																
	MECHANICAL & ELECTRICAL EQUIPMENT	14																																																
	PIPING & INSTRUMENTATION	15																																																
	CABLE TRAY & CONDUIT	16																																																
	CIVIL STRUCTURAL	17																																																
AUXILIARY BUILDING	COMPUTER EQUIP. & CONTROL BOARDS	18																																																
	RADWASTE SYSTEMS	19																																																
	MECHANICAL & ELECTRICAL EQUIPMENT	20																																																
	PIPING & INSTRUMENTATION	21																																																
	CABLE TRAY & CONDUIT	22																																																
YARD	ADMINISTRATION BUILDING & GATE HOUSE	23																																																
	CIRCULATING WATER SYS. & COOLING TOWERS	24																																																
	RIVER AND COOLING POND STRUCTURES	25																																																
	SINGLE LINES & TRANSFORMERS	26																																																
	RACEWAY & CIRCUIT SCHEDULE	27																																																
ELECTRICAL	WIRE & CABLE	28																																																
	CONNECTIONS	29																																																
	STARTUP ACTIVITIES	30																																																
UNIT 1	CIVIL-BASE MAT, WALLS & ELEVATED SLABS	31																																																
	CIVIL-PEDESTAL	32																																																
	STRUCTURAL STEEL	33																																																
	TURBINE GENERATOR & AUXILIARIES	34																																																
	CONDENSER	35																																																
	MECHANICAL & ELECTRICAL EQUIPMENT	36																																																
	PIPING & INSTRUMENTATION	37																																																
	CABLE TRAY & CONDUIT	38																																																
	CIVIL STRUCTURAL-EXTERIOR	39																																																
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REACTOR BUILDING	N.S.S. EQUIPMENT	41																																																
	MECHANICAL & ELECTRICAL EQUIPMENT	42																																																
	PIPING & INSTRUMENTATION	43																																																
	CABLE TRAY & CONDUIT	44																																																
	EVAPORATOR/AUXILIARY BOILER STRUCTURE	45																																																
ELECTRICAL	SINGLE LINES & TRANSFORMERS	46																																																
	RACEWAY & CIRCUIT SCHEDULE	47																																																
	WIRE & CABLE	48																																																
	CONNECTIONS	49																																																
STARTUP ACTIVITIES	50																																																	
AREA	ACTIVITY DESCRIPTION	S/N																																																



MILESTONE SUMMARY SCHEDULE

ATTENDANCE LIST

March 21-22, 1978

Midland Site Meeting

Licensee

G. S. Keeley	Consumers Power Company, Project Manager
* T. C. Cooke	Consumers Power Company, Project Superintendant
K. R. Kline	Consumers Power Company, Project Control Supervisor
D. D. Johnson	Consumers Power Company, Construction Control Supervisor
W. G. Jones	Bechtel, Project Cost & Schedule Supervisor

NRC

W. H. Lovelace	MIPC
D. S. Hood	NRR, Midland Project Manager
L. P. Crocker	NRR, Technical Assistant to DPM
T. E. Vandel	R:III, Project Inspector
R. J. Cook	R:III, On-site Inspector (designee)
** E. W. K. Lee	R:III, Inspector
** K. K. Naider	R:III, Inspector

* March 21 only

** Contacted, but did not participate in meeting

1298

B/7

Attendance 3/21/78

<u>Name</u>	<u>Organization</u>
Darl Alford	NAR/DPM
W.H. LOVELACE	NRC/INIPC
T.E. Vandel	NRC R:III Project Inspector
L.P. Crocker	NRC, DPM
R. J. COOK	NRC R:III
W. G. JONES	BECHTEL - PROJECT COST & SCHED. SUPERVISOR
D. D. Johnson	CPCO - Const Control Supv.
T. C. COOK	CPCO Project SUPERINTENDENT
E. R. CLINE	CPCO Project Control Supr.
GS Keeley	CPCO. Project Mgr.

MIDLAND 6-18-79 MEETING

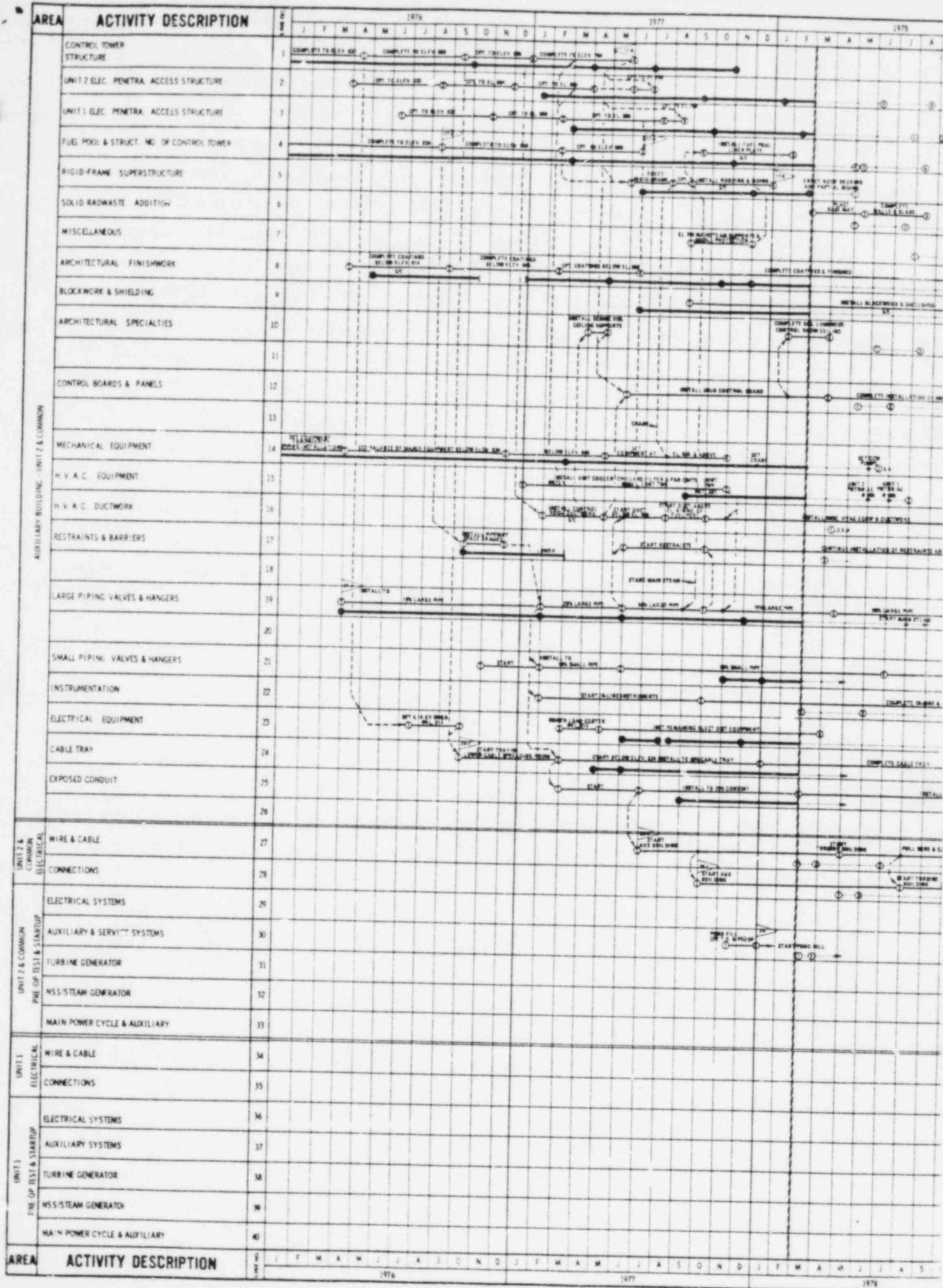
UNIT 2 FUEL LOAD DATE 6-81


UNIT 1 FUEL LOAD DATE 11-81

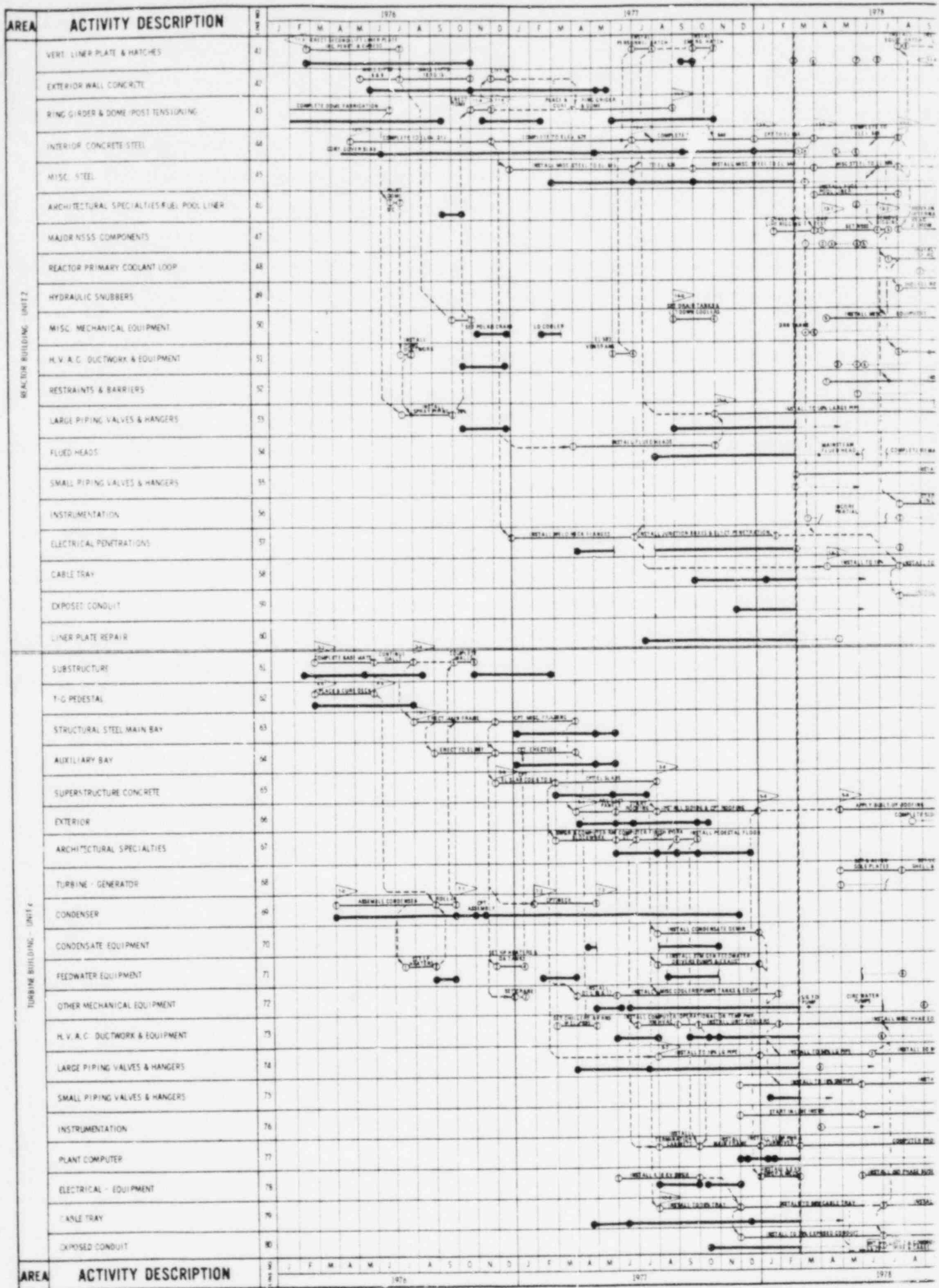
REASON FOR SLIP IS INCREASED QUANTITIES (ELECTRICAL & SMALL PIPE) AND REVISION OF PRE-OP SCHEDULE TO INCLUDE UNIT 1 TESTING.

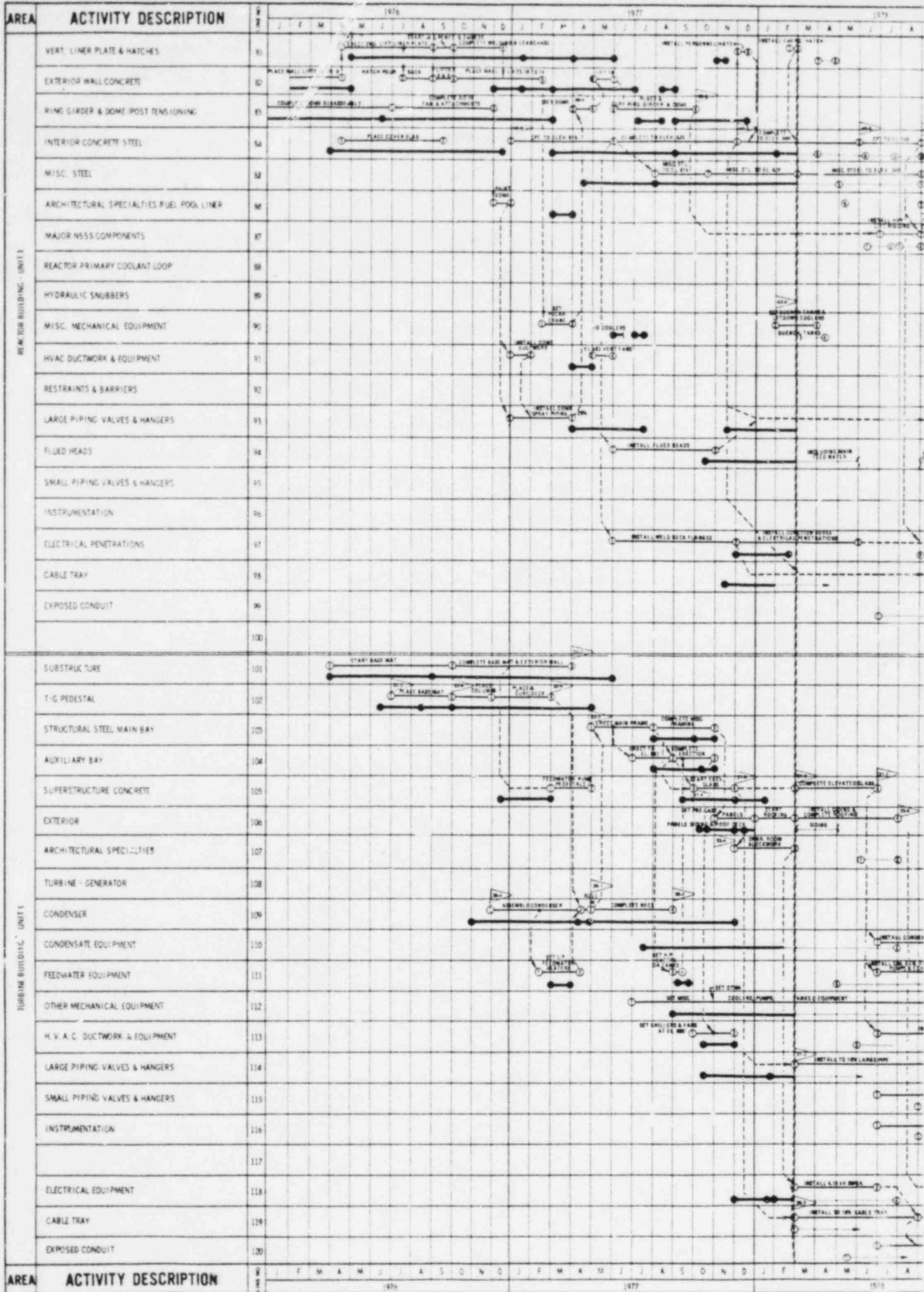
WILL ISSUE PUBLIC NOTICE OF SLIP BY 6-20-79.

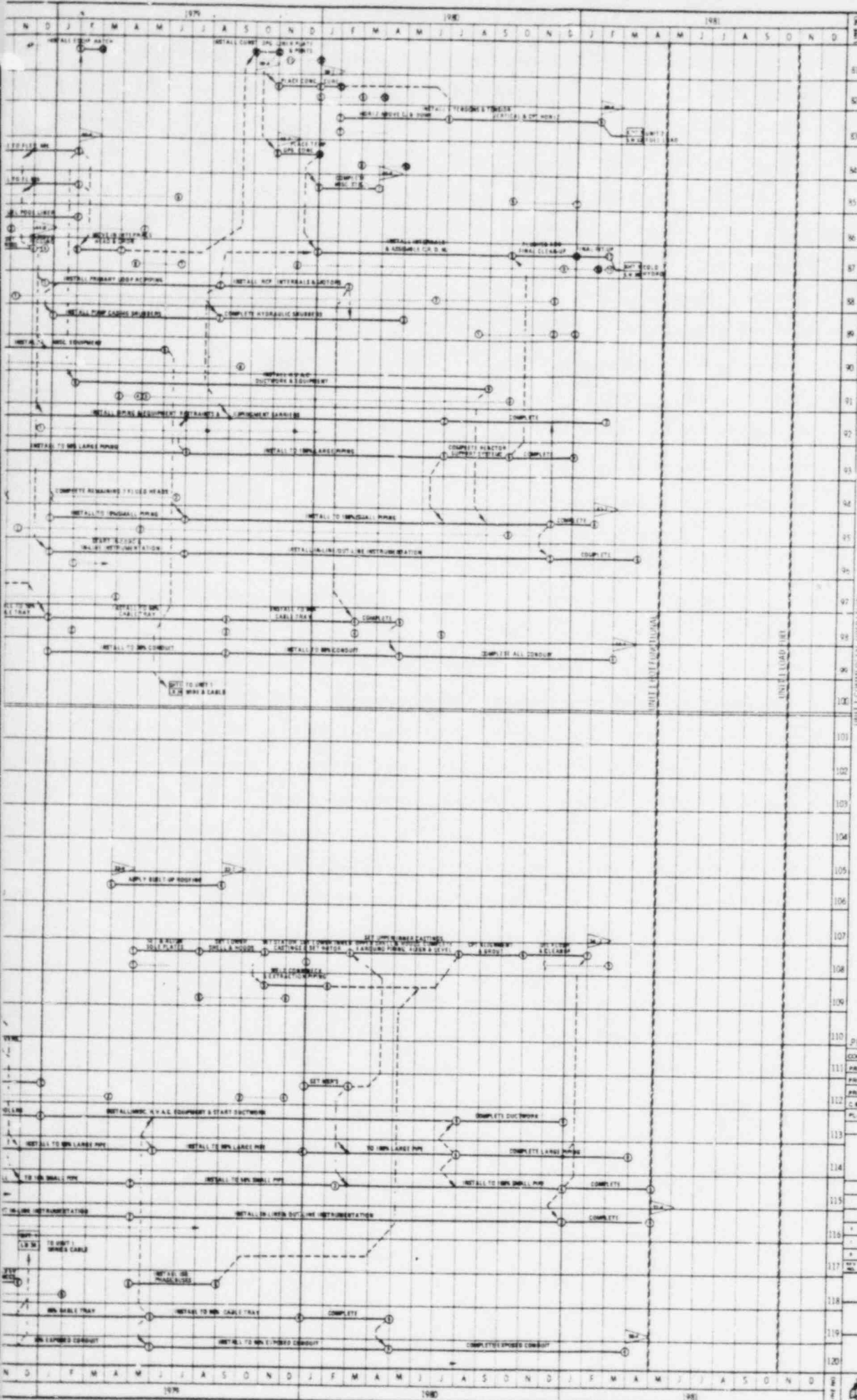
CONSUMERS MADE A SPECIFIC REQUEST FOR SITE VISIT AND EVALUATION OF CONSTRUCTION SCHEDULE AND FUEL LOAD DATE ASAP.



BECHTEL			
ANN ARBOR, MICHIGAN			
MIDLAND UNITS 1 & 2			
CONSUMERS POWER COMPANY			
CONSTRUCTION SUMMARY SCHEDULE			
AUX. BUILDING ELECTRICAL & STARTUP			
	JOB NO.	DRAWING NO.	REV.
	720	SHEET 1 OF 5	2







FOR LEGEND, SCHEDULE BASIS AND NOTES SEE PAGE 1 OF 4

UNIT 1 - REACTOR & TURBINE BUILDINGS
MARCH 1, 1974

PRELIMINARY ISSUE FOR FIC 5

CONTRACT NO.	1000
PROJECT NO.	1000
PROJ. ENG.	1000
PROJ. SUPV.	1000
C & E SUPV.	1000
PLANNER	1000
CONSTRUCTION APPROVALS	DATE

1. REVIEWED FOR PROJECT NO. 1	1000
2. REVIEWED FOR PROJECT NO. 2	1000
3. REVIEWED FOR PROJECT NO. 3	1000
4. REVIEWED FOR PROJECT NO. 4	1000

BECHTEL

ALAN ARBORE, MICHIGAN

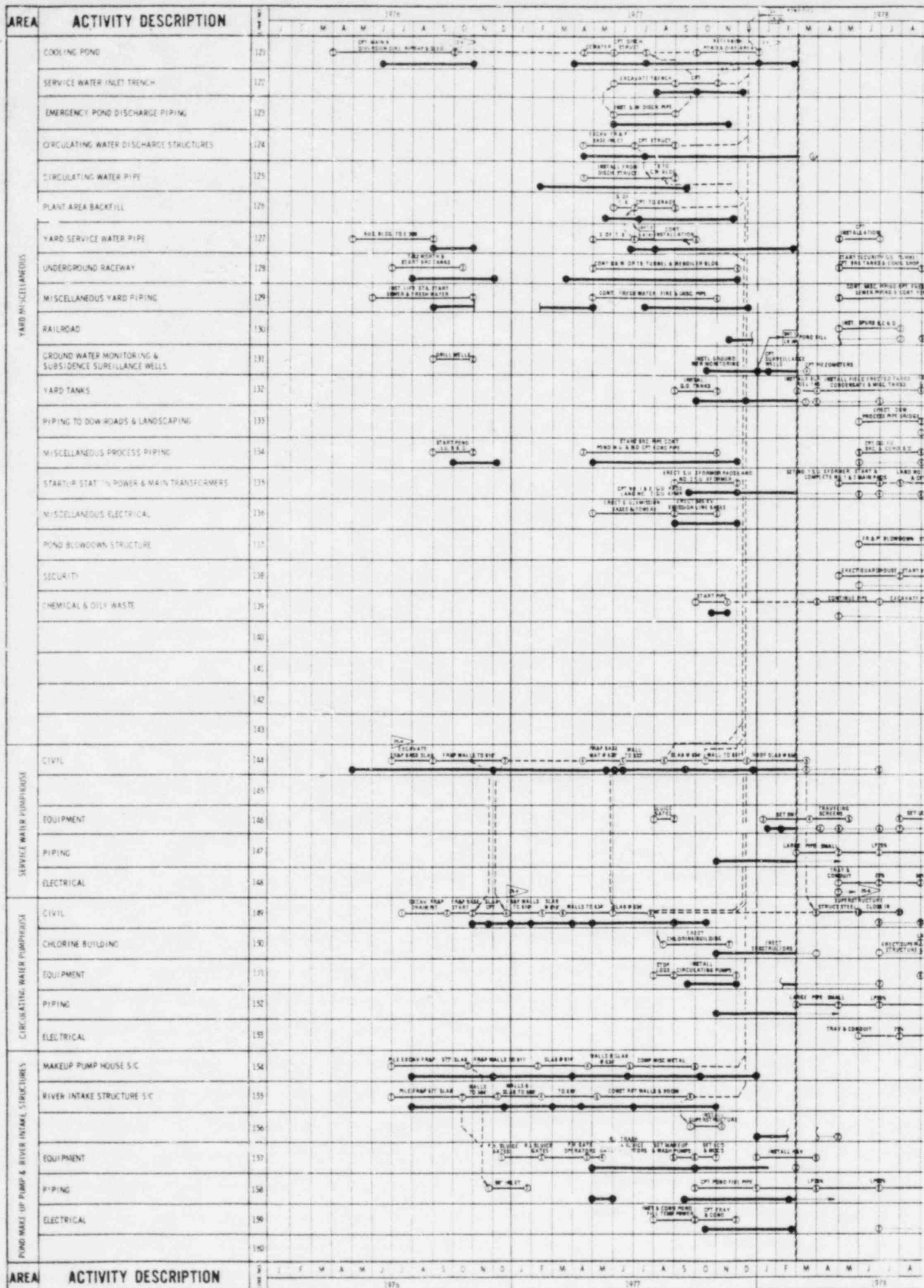
MIDLAND UNITS 1 & 2

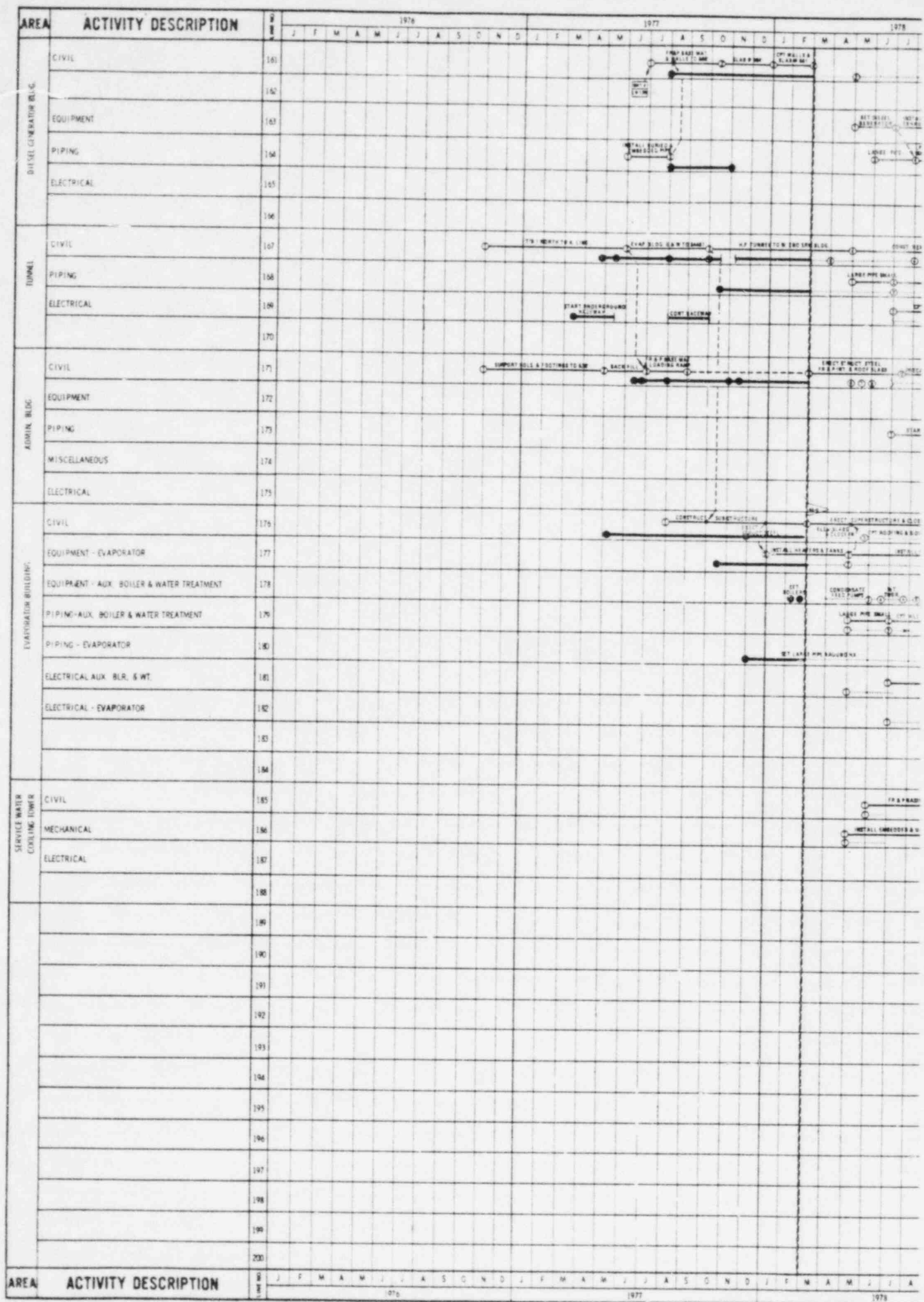
CONSUMERS POWER COMPANY

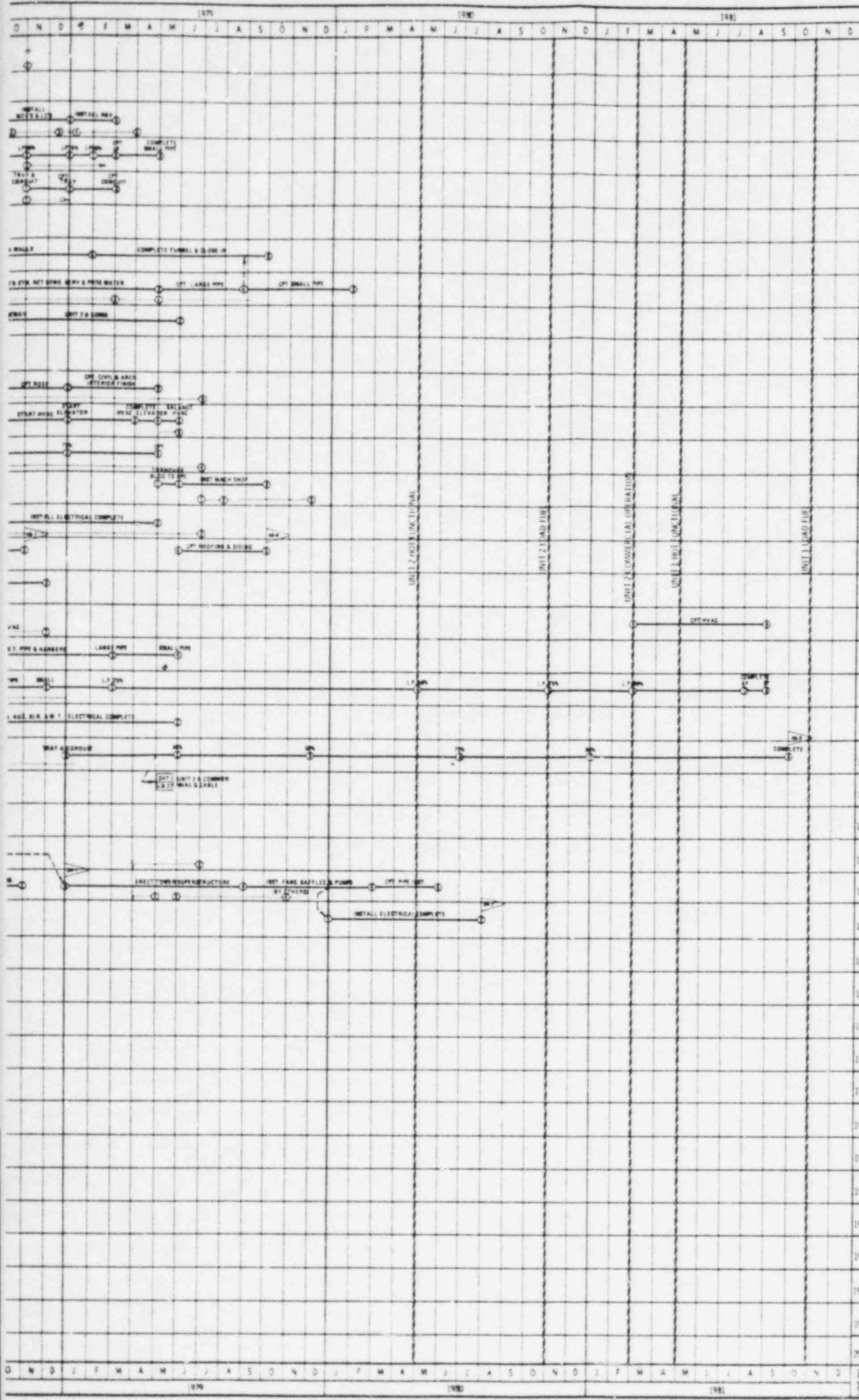
CONSTRUCTION SUMMARY SCHEDULE

UNIT 1 - REACTOR & TURBINE BUILDINGS

JOB NO.	DRAWING NO.	REV.
7220	SHEET 3 OF 5	2







FOR LEGEND, SCHEDULE BASIS AND NOTES SEE PAGE 1 OF 5

UNIT 1 CONSTRUCTION OPERATION
MARCH 1980

PRELIMINARY ISSUE FOR FIG. 5

CONSTR. MGR.	<i>[Signature]</i>	DATE	12/1/81
PROJ. MGR.	<i>[Signature]</i>	DATE	12/1/81
PROJ. ENGR.	<i>[Signature]</i>	DATE	12/1/81
PROJ. SUPV.	<i>[Signature]</i>	DATE	12/1/81
C.B.S. SUPV.	<i>[Signature]</i>	DATE	12/1/81
PLANNER	<i>[Signature]</i>	DATE	12/1/81

CONSTRUCTION APPROVALS _____ DATE _____

1	REVISION	REASON FOR REVISION	DATE
2	REVISION	REASON FOR REVISION	DATE
3	REVISION	REASON FOR REVISION	DATE
4	REVISION	REASON FOR REVISION	DATE
5	REVISION	REASON FOR REVISION	DATE

BECHTEL
SAN ALBINO, MICHIGAN

MIDLAND UNITS 1 & 2

CONSUMERS POWER COMPANY

CONSTRUCTION SUMMARY SCHEDULE
YARD & MISCELLANEOUS STRUCTURES

FIG. NO.	DRAWING NO.	REV.
7220	SHEET 5 OF 5	7

CC KKK

NRC YELLOW BOOK
February 1978

<u>Unit</u>	<u>% Complete</u>	<u>Fuel Load Date</u>
Braidwood 1	25	5-81
Braidwood 2	21	5-82
Bryan 1	33	10-80
Bryan 2	28	5-82
Catabawa 1	26	9-80
Clinton 1	23	4-81
Midland 1	35	11-81
Midland 2	39	11-80
Palo Verde 1	22	11-81
Perry 1	16	5-81
Perry 2	8	12-82
San Onfre 3	30	5-81
South Texas 1	29	5-80
South Texas 2	5	10-81
Waterford 3	37	11-80

SMH/sjb
3/15/78

[illegible]

REMARKS

- LEGEND**
- ACTUAL/SCHEDULE
 - - - - - INTERMITTENT ACTIVITY
 - ACTIVITY CONTROL POINT
 - P.O. COMMITMENT
 - ◇ SCHEDULE SITE DELIVERY
 - △ ACTUAL SITE DELIVERY
 - ▽ SUBJECT TRACT COMMITMENT

SCHEDULE BASIS

1. Clear Ground Rules
2. All CPM activities to proceed with Project by 2/1/77
3. All Permission for full construction to proceed by 6/1/77
4. Construction Operation Unit 2 - 2/1/81 (Phase 4)
5. Unit 1 - 2/1/82
6. Normal work week considered to be 40 hours
7. Full construction activity throughout winter months
8. S.C.E. considered 2/1/77, 6/6/77 and 2/1/78
9. Schedule includes 1978 work flow to complete and operate to cash flow completion after 1978
10. Schedule based on availability of adequate material after material
11. Schedule based on the May 1976 Forecast No. 1
12. Operations and difficult to stop and start will be required in selected areas in material schedule
13. Schedule based on the following program requirements:
14. All Civil operation - offshoot on schedule of the Auxiliary & Repair Building
15. All Plant & Electrical - offshoot to be critical in installation of power plant piping & electrical bulk equipment
16. Schedule assumes 6/1/78 forecast approved for any activities in 1978
17. Schedule does not include any provisions for acceleration of "BACKFITS" completed by 6/30/80

NOTES

- * Cashflow work assumed on major building completed from 11/8/77 through 12/18/77
- * No site work after 2 through May 17, 1978 due to water depths
- * Structural concrete activities reduced or halted May 1 through July 18, 1978 due to construction scheduling services
- * Construction activities reduced or halted May 3, 1978 through June 7, 1978 due to reduction in construction scheduling services
- * Structural concrete activities reduced or halted May 20, 1978 thru June 30, 1978 due to structural construction scheduling services

12/1/77	REV. 2	ISSUED FOR FORECAST NO. 4
1/1/78	REV. 1	ISSUED FOR FORECAST NO. 3
6/1/77	REV. 1	ISSUED FOR FORECAST NO. 3
11/1/78	REV. 3	ISSUED FOR FORECAST NO. 3
12/1/77	REV. 2	ISSUED FOR FORECAST NO. 4

BECHTEL
ANN ARBOR, MICHIGAN
MIDLAND UNITS 1 & 2
CONSUMERS POWER COMPANY

MILESTONE SUMMARY SCHEDULE

JOB NO.	DEA WING NO.	REV.
7220	1 OF 1	2

D & E overall %

Procurement

Civil

Electrical

Mechanical

Instrumentation

Proc in testing

~~Eng.~~
~~Eng.~~
Eng.

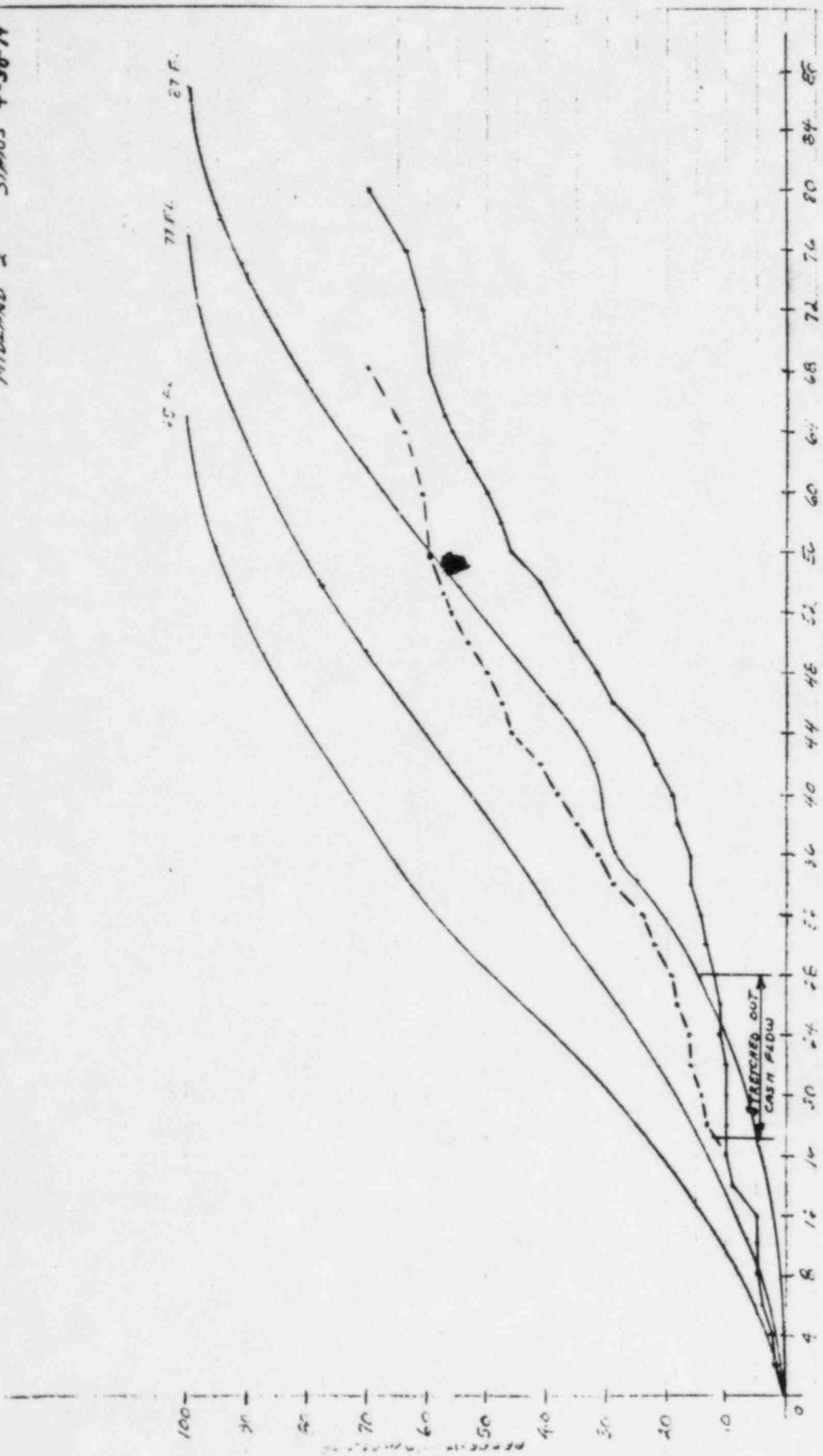
Exp MHS
CEBUS + PEC + Rs Scope
(Base) allow
PHC

Const.

Exp MHS
Base + Const + Allow + Res Scope

MIDLAND 2 STATUS 4-30-79

B/3



ELAPSED TIME FROM FIRST CONCRETE